For Reference

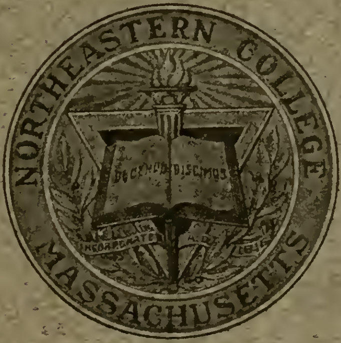
Not to be taken from this room

Northeastern College

SCHOOL OF LAW

TWENTY-THIRD YEAR

1920-1921



Boston Young Men's Christian Association
BOSTON, MASSACHUSETTS

NORTHEASTERN COLLEGE

of the

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

School of Law

Evening Sessions

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar, and grants the Degree of Bachelor of Laws.

School of Commerce and Finance

Evening Sessions

Complete preparation for state examination for Certified Public Accountants.

Four-year courses including Accounting, Auditing and Business Administration, leading to degrees of Bachelor of Commercial Science and Master of Commercial Science.

Co-operative School of Engineering

Day Sessions

Four-year courses in Civil, Mechanical, Electrical and Chemical Engineering leading to the degrees of Bachelor of Civil Engineering; Bachelor of Mechanical Engineering; Bachelor of Electrical Engineering; and Bachelor of Chemical Engineering. The school operates in co-operation with engineering firms. Students earn while learning. Open to high school graduates.

Evening School of Engineering

Evening Sessions

A school offering three-year courses in Civil, Mechanical, Electrical, Chemical and Structural Engineering. Trains men for positions of trust and responsibility.

School of Liberal Arts

Evening Sessions

Courses of college grade in English Composition, Literature, Ancient and Modern Languages, Mathematics, History, Economics, Government, Psychology, Logic, Philosophy, Education, Public Speaking, Journalism and others. Professors and instructors of New England colleges are engaged for this work. This school enables young men to pursue in the evening courses of instruction of the same high standard as those conducted by the best day colleges.

For catalogs and complete information, address the Secretary, 316 Huntington Avenue, Boston, Massachusetts.

FRANK PALMER SPEARE, M.H., *President.*

ASSOCIATION BUILDING

Northeastern College
SCHOOL OF LAW

An Evening Law School
with Day-School Standards

Case Method of Instruction
Competent Instructors
Compulsory Attendance
Rigorous Examinations

Published by
NORTHEASTERN COLLEGE
of the
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
316 Huntington Avenue, Boston, Mass.

Calendar

1920	Aug. 30—Sept. 3	Condition Examinations
	Aug. 30—Sept. 11	Registration
	Sept. 7	Senior Class Lectures Begin
	Sept. 13	Other Class Lectures Begin
	Oct. 12	Columbus Day
	Nov. 25	Thanksgiving Day
	Dec. 24— Jan. 1 inclusive	Christmas Recess
1921	Feb. 22	Washington's Birthday
	Apr. 19	Patriot's Day
	May 30	Memorial Day
	June 12	Baccalaureate
	June 15	Commencement

The social features will be announced from time to time.

Condition Examinations

Monday, Aug. 30	Criminal Law, Property I, Corporations
Tuesday, Aug. 31	Torts, Equity I, Property II (Deeds)
Wednesday, Sept. 1	Agency, Civil Procedure at Common Law, Partnership
Thursday, Sept. 2	Contracts, Bills and Notes, Equity II
Friday, Sept. 3	Sales, Wills

Examinations must be taken at the time scheduled, as no special examinations will be given.

Northeastern College

of the

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Officers and Members of the Corporation

ARTHUR S. JOHNSON, *President*

ALBERT H. CURTIS, *First Vice-President*

SABIN P. SANGER, *Second Vice-President*

WILMAN E. ADAMS, *Third Vice-President*

FRANCIS P. LUCE, *Recording Secretary*

LEWIS A. CROSSETT, *Treasurer*

WILLIAM C. CHICK
RUSSELL S. CODMAN
H. BRADLEE FENNO
GEORGE C. LEE
HENRY G. LORD
WILLIAM E. MACURDA
J. GRAFTON MINOT
WALTER B. MOSSMAN
HENRY W. NEWHALL
SILAS PEIRCE
CHAS. W. PERKINS
ARTHUR PERRY, JR.
THOS. H. RUSSELL
FRANK P. SPEARE
STANWOOD G. WELLINGTON

Board of Governors

ALBERT H. CURTIS, *Chairman*

WILLIAM C. CHICK
ARTHUR S. JOHNSON
WILLIAM E. MACURDA
FRANK P. SPEARE, *Ex-Officio*
STANWOOD G. WELLINGTON
WILMAN E. ADAMS

Northeastern College

Officers of the College

FRANK PALMER SPEARE, M.H., *President*
GALEN DAVID LIGHT, A.B., *Secretary-Bursar*

The Executive Council

FRANK PALMER SPEARE, M.H.
President of the College

CARL STEPHENS ELL, S.B., M.S.
Dean of the Co-operative School of Engineering and the Evening School of Engineering

DANA SCOTT SYLVESTER, L.L.B., B.C.S.
Dean of the School of Commerce and Finance

EVERETT AVERY CHURCHILL, A.B.
Dean of the School of Law

HOWARD H. C. BINGHAM, A.B.
Dean of the School of Liberal Arts

IRA ARTHUR FLINNER, A.M.
Headmaster of the Huntington School

THOMAS WEBB WATKINS, A.B.
Principal of the Northeastern Preparatory School

CARL D. SMITH, B.H.
Executive Secretary of the Regional Committee

GALEN DAVID LIGHT, A.B.
Secretary

Corporation of the School of Law

ROBERT G. DODGE, *President*
PHILIP S. PARKER, *Vice-President*
LEWIS A. CROSSETT, *Treasurer*
GALEN D. LIGHT, *Secretary*
ARTHUR S. JOHNSON
THOMAS H. RUSSELL
WILMAN E. ADAMS
FRANK P. SPEARE

School of Law

Officers of Administration

FRANK PALMER SPEARE, M.H., *President*
EVERETT AVERY CHURCHILL, A.B., *Dean*
ASA SAMUEL ALLEN, LL.B., LL.M., *Associate Dean*

Faculty

ASA SAMUEL ALLEN, LL.B., LL.M.
Massachusetts Practice and Bankruptcy

ARTHUR WILLIS BLACKMAN, A.B., LL.B.
Equity I

WILLIAM EDWIN DORMAN, A.B., LL.B.
Constitutional Law

ELIAS FIELD, A.B., LL.B.
Partnership

WILLIAM HAROLD HITCHCOCK, A.B., LL.B.
Equity II
Civil Procedure at Common Law

HAROLD PENDEXTER JOHNSON, A.B., LL.B.
Property II

WILLIAM AIKEN KNEELAND, A.B., J.B.
Property I

HUGH DEAN McLELLAN, A.B., LL.B.
Contracts

GUY NEWHALL, A.B., LL.B.
Property III

CLARENCE LUCIAN NEWTON, Ph.B., J.M.
Corporations and Wills

RAYMOND TASKER PARKE, A.M., LL.B.
Bills and Notes, and Sales

OSCAR STORER, A.B., LL.B.
Torts and Evidence

CURTIS H. WATERMAN, PH.B., LL.B.
Agency and Criminal Law

NATHAN BEACH BIDWELL, *Counselor*

Committee on Admission

IRA ARTHUR FLINNER, A.M., *Chairman*
EVERETT A. CHURCHILL, A.B.
THOMAS W. WATKINS, A.B.

Other Officers

EDNA J. GARRABRANT, *Recorder*
GERTRUDE ANNIE SHAW, S.B., *Librarian*

The Study of Law

The part played by law schools in American educational development has been most remarkable in the past, but the part they are to play in the future is certain to be of even greater import as evidenced by the continually increasing numbers of intelligent and ambitious young men who are being enrolled in the law schools of the country. Each year carries the enrollment figures far above those of the previous year and indicates more and more clearly that ambitious young men in ever increasing numbers choose law schools as furnishing the training best calculated to fit them for their life work.

The law, treating of every phase of human relationship, prepares the student to deal effectively with men and affairs, trains him to think, to think straight, to think a proposition clear through to the end, and then to act in accordance with judgment based on a clean-cut analysis of the facts, *pro* and *con*. This habit of analytical thinking and judicial action is indispensable to the practitioner of law, and of equal importance to the business man and those in political life; and it accounts in great measure for the marked success legally trained men have attained in these lines of activity.

Another valuable feature of the study of law is the fact that one begins to profit by the course almost from the outset. A law course, like money on interest, yields a return from the beginning, and this return accumulates from month to month. If obliged to withdraw before the completion of the law course, the student of law finds himself better equipped for whatever line of work he is to undertake. These facts have become known to thousands of men and have led to the increasingly large attendance in reputable law schools.

For a great many years Massachusetts has maintained two of the most prominent day law schools in America,—those at Harvard University and Boston University. There are, however, a large number of ambitious and competent men who, because of their employment during the day, cannot enter these universities, and who nevertheless desire the best equivalent. Through the coöperation of three of the leading teachers and practitioners of law, the Association Evening Law School, now known as Northeastern College School of Law of the Boston Young Men's Christian Associaton, was established and developed. Its success has been noteworthy and has earned for it the warm commendation of those familiar with the facts. Being part of a great educational system and wholly devoid of commercialism, it has been able to establish standards and maintain a grade of requirements which have won for it a high position among American law schools. Its methods are progressive, modern, and in accordance with the best practice. Its Faculty are honor men of the great day schools who have not only graduated with high rank after completing an extended course in the university and law school, but who have achieved success in the profession. The notable list of men on the Faculty attests to the quality of work done by the School and the esteem in which it is held by the members of the bar.

All the Association schools are absolutely non-sectarian; men of good character, regardless of their financial standing, social standing or creed, are admitted on an equal footing.

Close investigation is invited by all those interested in the study of law, and every opportunity will be afforded to inspect thoroughly the School, its methods, courses of study, past examination papers, and lists of graduates and their present occupations.

The various school reports, alumni letters and other sources of information show that our graduates succeed when they get out into actual life-work. Many of them hold highly responsible positions on the bench, before the bar, and in business and political life.

LAW LIBRARY

Historical Review

Northeastern College School of Law, offering a four-year course, was established in 1898 in response to a demand for an evening school which should be thorough in its work, and conducted in such a manner that its graduates should stand well at the bar and be recognized as men of professional attainment and ethical standards.

The School was established through the coöperation of the late Hon. James R. Dunbar, the late Prof. James Barr Ames, Dean of the Harvard Law School, and Mr. Samuel C. Bennett, then Dean of the Boston University Law School and was organized under the direction of this board of advisers.

Successful Career

The school has proved to be a success. Thirty-eight hundred and thirteen students have been enrolled, including clerks from the offices of leading attorneys; clerks and officers from every court in Boston; state, city, and government officials; teachers and students from other law schools; and a large number of able men engaged in different lines of business. About 90 per cent of our graduates have passed the bar examinations in Massachusetts or in other states. A very high percentage of the graduates have achieved distinct success on the bench, before the bar, in politics or in business.

Incorporation

In January, 1904, a bill was introduced into the Massachusetts Legislature seeking the incorporation of the School, with the power to grant the degree of Bachelor of Laws. The rapid passage of this bill by the legislature, and the cordial recognition and endorsement of the School by the bench, the bar, and the heads of our great day law and other professional schools, testify in no uncertain terms to the position the School occupies in the educational activities of the Commonwealth.

The Faculty

The success of the law school can be attributed, in large measure to two factors: First, to impartial administration whereby the rules relating to attendance, grading, examinations, and scholarship are strictly and impartially enforced; and second, to the faculty, which is made up of men, many of whom have graduated from their respective law schools with scholastic honors, and all of whom have been pre-eminently successful in the legal profession. The contact of the students with practising attorneys of broad experience, liberal training, and high ethical and professional standards has proved of inestimable value; and has resulted in the development of a school which has been to the highest degree successful.

Method of Instruction

There are three methods of instruction employed by law schools: The lecture method, in which the instructor gives a presentation exercise and assigns cases to be read in relation thereto; the case method, in which cases are assigned to be read in advance, and later discussed and commented upon in class; and a combination of these two systems, in which the instructor's lecture or presentation of the essentials is followed by the discussion of cases previously read.

Twenty-one years' experience has led the School of Law to adopt a modification of the third method, namely: Lecture, citation, and discussion, supplemented with written tests and systematic quizzes. The value of this method is clearly demonstrated by the success of our students at the bar examinations and later in practice.

BOWLING ALLEYS

SWIMMING POOL

Requirements for Admission

Character

Applicants for admission to the School must present satisfactory evidence of moral character.

Academics

Graduates of colleges, technical schools, and four-year courses in day high schools of good standing are admitted without examination upon presentation of certificate or diploma.

Applicants who have done some work in a high school, but not enough to receive a diploma, must present credentials covering such work. The Committee on Admission will pass upon the credentials, allow credit for work in the subjects listed below done to the satisfaction of the Committee, and, if sufficient work has not already been done, will prescribe from the subjects listed below enough to fulfill the Law School requirements.

The status of all other applicants will be determined by the Committee after consideration of the facts in each case.

Examinations will be arranged for those who have a knowledge of academic subjects but are unable to furnish credentials covering the same.

Credit for work in the subjects listed below aggregating at least eight points is required as the academic basis of our degree. A point represents work in a given subject covered in one hundred and forty recitation hours. Eight points represent usually two years' work in standard day high schools offering a four-year course.

Required

English

Elective

Algebra
Botany (adv'd)
Chemistry (adv'd)
English
Economics
French
German
Greek
Government
Geometry
History
Latin
Logic
Physics (adv'd)
Psychology
Spanish

From the foregoing it will be noted that credit is allowed for work of a college nature as well as for work of a preparatory school nature. Applicants who have conditions to work off are usually well qualified to do work in college courses in Government and Economics; and such courses are deemed more practical for them than work of a secondary school character.

Enrollment

Owing to the delay each year on the part of the students, and the consequent rush on the opening night, those desiring admission are requested to register during the two weeks previous to the opening of the School.

For the application blanks for admission to the School, or for further information, address the Dean of the Law School.

It is of the greatest importance that students attend the lectures and receive credit therefor. In order to receive attendance credit students must enroll and arrange with the Bursar for the payment of their tuition. After the application blanks have been filed in the office of the Law School, letters have to be written and credentials have to be obtained and acted upon before the students' status can be determined. This necessarily requires considerable time. Manifestly students should not wait for the status reports but should enroll at once.

Academic Conditions

Less than ten per cent of the men of America graduate from high schools. When any of the remaining ninety per cent, after school age, wish to take up a profession, they find it necessary to make up more or less high school work. In instances of this sort the student's individual case is considered, and by permission of the School authorities he enters the Law School conditioned in academics; and while taking the regular work with his class, he remains under this classification until his academic conditions are wholly removed.

Law schools and colleges dealing with students who come directly from the high school and who have been prepared specifically for college examinations, have been quite arbitrary in their admission requirements; but they are becoming less so, are allowing substitutions and equivalents, and, instead of barring out worthy young men, are taking a much more lenient attitude and encouraging their attendance. Northeastern College School of Law seeks to help, as much as possible, those men who have been deprived of extensive educational opportunities; and is justified by experience in admitting those who, though not fully prepared along academic lines, are, in the opinion of the Faculty, men of promise, aptitude, and ambition, provided they are willing to meet all requirements.

The School authorities, while obliging every student who is a candidate for the degree to remove all academic conditions before entering the Senior Class, except when specially excused, admit capable men who are not high-school graduates and then, through Northeastern Preparatory School or the School of Liberal Arts, allow them to make up these deficiencies in a thoroughly satisfactory manner. The wisdom of this procedure has been shown by the high degree of scholarship displayed by such students, by the ease with which they have passed the bar examinations, and by their success in the profession.

No student who fails on account of academic conditions to receive his degree in due course will be permitted, except by special vote of the Faculty, to remove his conditions later than two years after graduation of his regular class.

Northeastern Preparatory School, attended annually by over one thousand students, has been in operation for many years and has fitted men in large numbers for the college, the university and the law school. Its diploma is accepted by the Bar Examiners and its certificates by the College Entrance Certificate Board. The school is in operation throughout the year, making it possible for law students to remove their academic conditions when the Law School is not in session. A prospectus is issued by both this school and the School of Liberal Arts. Copies may be obtained by addressing Northeastern Preparatory School, the School of Liberal Arts, or by telephoning Back Bay 4400.

Removal of Academic Conditions

No student will be allowed to enter the Senior Class of the Law School with any academic conditions, except by special permission of the School authorities. Request for such permission should be made promptly and in writing.

Advanced Standing

Candidates for admission to advanced standing will file their applications and credentials regarding previous study of law with the Dean. After due consideration of the standing of the school and the nature and extent of the applicant's attendance and scholarship thereat, the School authorities will apprise the applicant of his status as a student upon entering the Law School.

Law Conditions

No student who has more than one law condition standing against him on the work of the first two years will be allowed to register as a regular third-year student, and no student having any law condition will be admitted as a regular student to the fourth year. He may, however, although registered as a third-year student, take and be credited with a limited number of fourth-year subjects, the number varying according to the number of his conditions.

No student who fails on account of law conditions to receive his degree in due course will be permitted, except by special vote of the Faculty, to remove his conditions later than two years after the graduation of his regular class.

Attendance Upon Lectures

The student must attend at least one-half of the lectures in a course in order to be permitted to take the examination therein. No exception is made to this rule.

If the student attends at least three-fourths of the lectures in a course, he is entitled to take the examination therein and will pass if he attains a grade of 60 per cent.

If the student attends between one-half and three-fourths of the lectures in a course, he must furnish satisfactory excuse to the Committee on Attendance for the absences under three-fourths in order to be permitted to take the examination therein; and, further, he must attain a grade of 70 in order to pass in such examination.

A student must have an aggregate attendance of at least two-thirds of all the lectures scheduled for him in a given year in order to be enrolled the year following as a regular student.

A student must have an aggregate attendance of at least two-thirds of all the lectures scheduled for him in his entire curriculum in order to qualify in attendance for his degree. No exception is made to this rule.

In order to receive credit for attendance at a lecture, a student must be present in the classroom during the entire lecture period, unless, upon satisfactory excuse, his presence for a shorter period is accepted by the Committee on Attendance.

It will be noted from the foregoing that attendance affects the student in two ways, viz., (1) in qualifying to take examinations in his respective courses, and (2) in qualifying for the degree.

Once a month each student receives from the Registrar a report which shows in detail his attendance situation to date.

The required period of attendance at the School is four years. One or two years' attendance at an accredited three-year day law school or an accredited four-year evening law school may be counted as a part of the four years.

Examinations

One examination is regularly given in each course at the close thereof. Examinations scheduled at the end of the first half-year courses are called mid-year examinations; and those scheduled at the end of the second half-year courses and at the end of the full-year courses are called final examinations.

One make-up examination is regularly given each year in each course, those in Senior subjects in the spring and those in Junior, Sophomore, and Freshman subjects in September. (See schedule for September, 1920, on page 3.) Moreover, a student may take as a make-up any mid-year or final examination regularly given in a course in which he is conditioned.

A student who fails in the mid-year or final examination in a given course receives credit for only 60, even if he obtains a higher grade in a make-up examination in that course.

If a student for good cause does not take the examination given at the close of a course, he will be permitted to take it any time thereafter when an examination in that subject is regularly scheduled; and since that will be his first examination therein, he will receive full credit for whatever grade he attains.

The receipt of a passing mark in a course precludes a student from another examination therein.

In case of sickness or other unavoidable cause, a student may take any of the above regular examinations at the same time, but apart from the rest of the students, provided he makes arrangements for so doing with the Dean sufficiently in advance and pays $2.00 for the services of a proctor, together with the cost of transportation of the proctor to and from the place of accommodation.

A special examinatin is given only in the case where a student because of sickness is prevented from taking the last mid-year, final, or make-up examination regularly scheduled in a subject before the Commencement at which he is a candidate for the degree. The student so accommodated will reimburse the School in the sum of $12.00, the cost of drafting the questions and providing proctor services.

In order to be permitted to take an examination in a course, the student must qualify in attendance thereat.

All examinations must be written in ink.

Tests

In order to develop the student's power of logical continuity of thought and of clear and accurate expression, a system of tests is maintained whereby one test is regularly given in each course during the progress thereof. In these tests, the students are marked not only upon the law but also upon the form, namely, spelling, grammar, composition, and neatness. Ten points are obtainable in the test toward the student's standing in the course in which it is given, the remaining ninety points being obtainable for the work in the regular examination therein.

Every student is urged to visit the Dean's office, inspect his corrected paper, and receive a personal interview upon the same; and those students whose work is unsatisfactory are required to make such visits. This opportunity for personal interview is embraced very generally by the student body, and aside from producing marked improvement in the student's written expression and in his mental attitude in the study and application of the law, it furnishes a valuable meeting-ground between the student, the Faculty, and the Executive Staff.

If a student for good cause does not take the test given during the progress of a first-, second-, or third-year course, he will be permitted to take it any time thereafter when a test in that subject is regularly scheduled; and since that will be his first test therein he will receive full credit for whatever grade he attains.

The receipt of six points in a test in a course precludes a student from another test therein.

If a student receives less than six points in the test given during the progress of a first-, second-, or third-year course, he will be permitted to take it again any time thereafter when a test in that subject is regularly scheduled; but he will receive credit for only six points, even though he obtains a higher grade therein.

In case of sickness, or other unavoidable cause, a student may take any of the above regular or make-up tests at the same time, but apart from the rest of the students, provided he makes arrangements for so doing with the Dean sufficiently in advance, and pays $2.00 for the services of a proctor, together with the cost of transportation of the proctor to and from the place of accommodation.

A special test is given only in the case where a student because of sickness is prevented from taking the last regular or make-up test regularly scheduled in a subject before the Commencement at which he is a candidate for the degree. The student so accommodated will reimburse the School in the sum of $3.00, the cost of drafting the questions and providing proctor service.

Marks

For relation between attendance and marks, see pages 20 and 21.

With respect to grade, a student is entitled to a degree if he obtains at least 60 in all courses scheduled in the entire four-year curriculum or if, failing in one Senior subject, he obtains an average of at least 65 in all courses so scheduled; provided always that his attendance is such as not to require 70 as passing mark.

A student qualifies for *cum laude* distinction if he obtains an average of at least 80 in all courses scheduled in the entire four-year curriculum.

Grade reports are mailed to the students from the office of the Dean.

Requirements for the Degree

In order to qualify for the degree of Bachelor of Laws, a student must meet the following requirements:

Be twenty-one years of age at time of receiving the degree.

Fulfill the academic requirements.

Make the required attendance upon lectures.

Obtain the required marks in all courses scheduled for the degree.

Note. Candidates for graduation should file their applications in the Law School office not later than January 15 of the year in which they plan to receive their degree.

Certificates

Every person who, while a member of the School, passes a satisfactory examination in one or more subjects, will be entitled to a certificate, stating the length of time he has been a member of the School, and specifying the subjects in which he has passed.

SPECIAL NOTE:

It is generally recognized by competent legal educators and practitioners that the minimum academic requirement necessary for the most effective study and practice of law should be high school graduation or its equivalent. The Massachusetts Legislature has been led, however, to take a different attitude, and passed a law some years ago whereby two years of high school work would be accepted.

The Faculty of Northeastern College is in complete accord with the four-year requirement, and has frequently urged its adoption. We are pledged, however, to serve the best interests of employed men in this state and have not felt at liberty to decline the applications of worthy men who would thereby be obliged to study under less favorable conditions.

As an offset to these lower requirements in Massachusetts we have declined the applications of a great many students whom we regarded as unfit for the study of law, increased the severity of our legal courses, and made our examinations of such a type that they reveal not only the students' knowledge of law, but of English and other subjects as well.

In the divisions maintained in other states, however, high school graduation is required, as specified in the various catalogs.

Divisions of Northeastern College

Divisions of Northeastern College School of Law are maintained at the Worcester, Springfield, and Providence Y.M.C.A.'s. Divisions of Northeastern College School of Commerce & Finance are maintained at the Worcester, Springfield, Providence, New Haven, and Bridgeport Y.M.C.A.'s. A branch is maintained at the Lynn Association. Catalogs may be obtained upon application at any of the cities listed above.

LOBBY

PROGRAM OF INSTRUCTION

FIRST HALF-YEAR

	LAW I	LAW II	LAW III	LAW IV
Monday	TORTS Professor Storer 7.00-8.30	PROPERTY I Mr. Kneeland 7.00-8.10 PARTNERSHIP Mr. Field 8.20-9.30	COMMON LAW PLEADING (Omitted 1920-21) 7.00-8.30	MASSACHUSETTS PRACTICE Associate Dean Allen 7.00-8.30
Tuesday	CONTRACTS Professor McLellan 7.00-8.30			
Wednesday		BILLS and NOTES Professor Parke 7.00-8.30	EQUITY II and SURETYSHIP Mr. Hitchcock 7.00-8.30	EVIDENCE Professor Storer 7.00-8.30
Thursday	CRIMINAL LAW Mr. Waterman 7.00-8.30			
Friday		EQUITY I Mr. Blackman 7.00-8.30	CORPORATIONS Professor Newton 7.00-8.10 WILLS Professor Newton 8.20-9.30	CONSTITUTIONAL LAW Professor Dorman 7.00-8.10 PROPERTY III (2d part) Professor Newhall 8.20-9.30

SECOND HALF-YEAR

	LAW I	LAW II	LAW III	LAW IV
Monday	TORTS Professor Storer 7.00-8.30	PROPERTY I Mr. Kneeland 7.00-8.30	PROPERTY II Mr. Johnson 7.00-8.30	BANKRUPTCY Associate Dean Allen 7.00-8.30
Tuesday	CONTRACTS Professor McLellan 7.00-8.30			
Wednesday		SALES Professor Parke 7.00-8.30	EQUITY II and SURETYSHIP Mr. Hitchcock 7.00-8.30	EVIDENCE Professor Storer 7.00-8.30
Thursday	AGENCY Mr. Waterman 7.00-8.30			
Friday		EQUITY I Mr. Blackman 7.00-8.30	CORPORATIONS Professor Newton 7.00-8.30	PROPERTY III (1st part) Professor Newhall 7.00-8.30

Outline of Courses

FIRST YEAR

Torts

(Thirty-two Lectures)

Definition of tort; theory of liability in tort; distinctions between tort and breach of contract; defences to torts or apparent torts; assignability of right of action in tort; damages; discharge of torts; disability, including responsibility of infants, married women, insane persons, municipal corporations and charities in tort; assault and battery; false imprisonment; trespass to property; slander and libel; slander of title; enticement and seduction; loss of consortium; deceit; infringement of trade-marks; malicious prosecution; negligence.

Bigelow on Torts.

Ames' and Smith's Cases on Torts.

Simpson's Cases on Torts.

Contracts

(Thirty-two Lectures)

Offer and acceptance; consideration; performance of, or promise to perform non-contract obligation as consideration; moral obligation as consideration; antecedent act or agreement as consideration; parties to a contract, including aliens, executors and administrators, guardians, infants, insane persons, intoxicated persons and married women; omitting agents, corporations and partners on account of these subjects being given in other courses; contracts under seal, including the form, requisites thereof, delivery and the matter of consideration; rights of beneficiaries under a contract; rights of assignees of a contract; conditional and unconditional contracts; rescission of contracts; damages for breach of contract; illegality; duress; mistake; statute of frauds; quasi-contracts.

Keener's Cases on Contracts, second edition.

Criminal Law

(Sixteen Lectures)

Sources of Criminal Law; The Elements of Crime; Effect of Consent, Condonation, Negligence of Person Injured, Coercion, and Necessity; Criminal Intent; Effect of Mistake of Fact, Infancy, Insanity, and Intoxication; The Criminal Act; Attempts; Parties in Crimes; Assault and Battery; Mayhem; False Imprisonment; Abortion; Rape; Murder and Manslaughter; Larceny; Embezzlement; Obtaining Property by Cheats and False Pretenses; Receiving Stolen Property; Burglary; Arson; Forgery; Libel; Perjury; Conspiracy; Criminal Procedure in Massachusetts.

Mikell's Cases on Criminal Law.

Agency

(Sixteen Lectures)

Capacity of the parties to the relation; creation of the relation; authority of an agent; manner of execution of authority; effect of relation as between principal and agent, between agent and third persons, and between principal and third persons; ratification; duration and termination of the relation.

Wambaugh's Cases on Agency.

SECOND YEAR

Property I

(Thirty-two Lectures)

Distinction between Real and Personal Property; Rights of Action Based on Possession or on Ownership; Possessory Interests in Chattels, including Bailments, Pledges and Liens; Acquisition of Ownership in Chattels, including Adverse Possession, Accession, Confusion, Judgment and Gifts; Fixtures and Emblements.

The Feudal System; Tenure in Land; Estates in Land, including their Creation and Methods of Conveyance under the Feudal System; Reversions, Remainders and other Future Estates; Joint Ownership; Disseisin and the Remedies Therefor;

Uses and Trusts; Air; Right to Lateral Support; Water; Profits; Easements; Licenses; Covenants Running with the Land; Rents; Waste; Public Rights in Waters and Highways.

Bigelow's Cases on Personal Property.

Bigelow's Cases on Rights in Land.

Partnership

(Sixteen Lectures)

What Constitutes a Partnership; A Partnership distinguished from other Relations; Partnership by Estoppel; Creation of Partnership; Who May Become Partners; Partnership Name; Contribution toward Capital of Partnership; Nature of Partner's Interest in Partnership Property; Transfer of Partnership Property; Effect on Partnership Property of Death of Partner; Nature, Extent and Duration of Partnership Liability; Powers of Partners, both before and after Dissolution; Rights and Duties of Partners Inter Se; Remedies of Partner Inter Se; Rights and Remedies of Creditors; Termination of Partnerships; Limited Partnerships.

Gilmore's Cases on Partnership.

Equity I

(Thirty-two Lectures)

History, nature, and limits of the jurisdiction; the jury in equity; the maxims; assignments; equitable rights, including accident and mistake, fraud, notice, estoppel, conversion, adjustment of liabilities; equitable remedies, with particular attention to specific performance and injunctions; reformation and rescission, account, and other pecuniary remedies.

Ames' Cases in Equity Jurisdiction, Vol. I.

Barney's Equity and Its Remedies.

Bills and Notes

(Sixteen Lectures)

The provisions of Revised Laws of Massachusetts, Chapter 73 (Negotiable Instruments Law). Formal requisites of negotiable and non-negotiable bills of exchange, checks and notes; obligations and rights of the various parties to such instruments, makers, acceptors, drawers, drawees, payees, indorsers and indorsees; suits upon bills and notes; pleading and defenses, accommodation paper; guaranty and generally of the transfer, indorsement and extinguishment of bills and notes.

Revised Laws of Massachusetts, Chapter 73.
Colson's Huffcut on Negotiable Instruments, second edition.
Norton on Bills and Notes, fourth edition.
Brannan's Negotiable Instruments Law third edition.

Sales

(Sixteen Lectures)

Sales and mortgages of personal property; subject matter of sales; when title passes; risk of loss; rights and remedies of seller and buyer in executed, executory and conditional contracts of sale; warranties of title and quality; seller's lien and stoppage *in transitu*; bills of lading and other documents of title; fraud; statute of frauds; factors and recording acts; actions and defenses.

Pamphlet of Sales Act, Massachusetts Acts of 1908, Chapter 237, and of Bills of Lading Act, Massachusetts Acts of 1910, Chapter 214.

Woodward's Cases on Sales.
Tiffany on Sales, second edition.
Williston on Sales, 1909 edition.
Burdick on Sales, third edition, 1913.

THIRD YEAR

Common Law Pleading

(Sixteen Lectures)

Procedure from the original writ to appeal and review of judgment; how a right may be enforced and a remedy obtained in the courts; venue of actions; forms of actions, local and transitory, real, personal and mixed; original and judicial writs; pleadings, their necessity, uses, forms and rules by which they are governed; the effect of pleadings in conduct and results of the trial; protection of rights of the parties before, during and after trial, and before and after judgment; revision of proceeding, exceptions, appeal and review.

Scott's Cases on Civil Procedure.

Equity II and Suretyship

(*Thirty-two Lectures*)

Nature and requisites of a trust; a trust distinguished from a debt; constructive and resulting trusts, charitable trusts, etc.; language necessary to create a trust; consideration; the Statutes of Frauds and Wills; subject matter of a trust; the *cestui que* trust; the trustee; nature of the *cestui que* trust's interest; transfer of trust property, rightful and wrongful; extinguishment of a trust; duties of the trustee.

Scott's Cases on Trusts.

Comprising the rights and obligations subsisting among the three parties involved in a suretyship transaction, namely, principal obligor, surety and creditor.

Ames' Cases on Suretyship.

Property II

(*Sixteen Lectures*)

Acquisition of real property *inter vivos.* Accretion; adverse possession; prescription; form of conveyances at common law; deeds,—description of property granted, boundaries, estates created, incorporeal hereditaments, covenants for title, estoppel by deed, execution, delivery; dedication; examination of titles.

Gray's Cases on Property, Vol. III (second edition).

Wills

(*Sixteen Lectures*)

History of wills; descent of property; kind of wills; testamentary power; who may make a will; what may be given away by a will; who can be beneficiaries under a will; mental capacity to make a will; insanity; lunacy; contract to make a will; form of will; incorporation by reference of outside documents; execution of will, that is, signing, witnessing, publication; mistake; fraud; undue influence; methods of revoking will and effect of same; republication of will; grant of probate and administration; the estate of executor or administrator; legacies; distribution; construction.

Costigan's Cases on Wills.

Corporations

(Thirty-two Lectures)

Nature of a corporation; difference between corporation and partnership; distinction between stockholders and corporation; promotion of corporations; formation of corporations; corporations *de jure*; corporations *de factor*; dissolution of corporations; interpretation of charters; powers of a corporation; doctrine of *ultra vires;* liability for torts and crimes; corporation and the state; shares of stock, dividends; rights of stockholders; stockholders' liabilities; voting rights of stockholders; voting trusts; rights and liabilities of directors and officers; rights and remedies of creditors against property of corporations; foreign corporations.

Canfield and Wormser's Cases on Private Corporations.

FOURTH YEAR

Evidence

(Thirty-two Lectures)

Judicial notice; judge and jury, or law and fact; burden of proof; presumptions; admissions; confessions; principles of exclusion; relevancy; character evidence; hearsay evidence and exceptions thereto, including declarations as to matters of pedigree, matters of public interest, public records, declarations in regular course of business, account-books, declarations against interest, *res gestae*, dying declarations, declarations made under oath, declarations showing physical or mental conditions; opinion evidence; best evidence; writings as evidence; examination of witnesses.

Greenleaf on Evidence.
McKelvey on Evidence.
Thayer's Cases on Evidence.
Wilgus's Cases on Evidence.
Wigmore's Cases on Evidence.

*Property III (first part)**

(Twelve Lectures)

Mortgages; landlord and tenant; joint ownership.

Jones on Mortgages.

Hall on Landlord and Tenant.

Crocker's Notes on Common Forms.

*Property III (second part)**

(Twenty Lectures)

Conditional and future interests in property, including reversions and remainders; rule against perpetuities; forfeiture and restraints on alienation; probate law and practice.

Gray's Cases on Property, Vols. V and VI.

Gray's Rule against Perpetuities.

Gray's Restraints on the Alienation of Property.

Fuller's Probate Law.

Newhall's Settlement of Estates.

Constitutional Law

(Sixteen Lectures)

Written and unwritten constitutions; history and sources of written constitutions in the United States, state and national; establishing and amending constitutions; distribution of powers between the national and state governments; distribution of powers among the three departments; the judicial department; nature of judicial power; jurisdiction of the federal government, criminal and civil; express, implied, resulting and inherent powers; functions of administrative officers; citizenship; civil and political rights; the police power; the right of eminent domain; taxation; impairment of contracts, *ex post facto* and retrospective legislation generally; regulation of commerce.

Thayer's Cases on Constitutional Law.

Hall's Cases on Constitutional Law.

Cooley's Principles of Constitutional Law.

McClain's Cases on Constitutional Law.

---

* Property III (first part) and Property III (second part) are treated as entirely separate courses with respect to attendance, examinations, monthly tests, etc.

Massachusetts Practice

(*Eighteen Lectures*)

Courts in Massachusetts and jurisdiction of each; venue of actions, local and transitory; writs, including service of same; arrest on mesne process and on execution; attachment of mesne process and by trustee process; what property is exempt; entry of actions; appearances, non-suit and default; pleadings, including declaration, answers, demurrers, etc.; set-off, recoupment and cross actions; tender; offer of judgment; interrogatories; depositions; masters and auditors; trial; exceptions; motions for new trial; motion to vacate judgment; writs of review, error and *audita querela*; appeals; execution; replevin; summary process to recover land; writ of entry; mechanics' lien; extraordinary writs; Statute of Limitations; equity pleading and practice; probate practice; marriage and divorce.

Buswell and Walcott on Massachusetts Practice.

Bankruptcy

(*Fourteen Lectures*)

History of bankruptcy legislation, state and national; extent and operation of state insolvency laws; who may become a bankrupt; who may be petitioning creditors; acts of bankruptcy, including fraudulent conveyances, preferences and assignments for the benefit of creditors; what property passes to the trustee; dissolution of liens; what claims are provable against the bankrupt's estate; duties and powers of the trustee; duties of the bankrupt; discharge from bankruptcy; compositions in the bankruptcy court; bankruptcy procedure.

United States Bankruptcy Act of 1898, with amendments.

Williston's Cases on Bankruptcy, second edition.

Supplementary Instruction

Quizzes

In addition to the formal lectures, the students meet regularly throughout the year for a systematic review of the material covered by the regular lectures. These quizzes are conducted by experienced instructors. Students are also encouraged to form quiz clubs among themselves.

Public Speaking

Instruction is offered in Public Speaking. A lawyer, to be successful, should have ability and training in public speaking; hence it is recommended that all members of the junior class take the course offered.

The work is in charge of a skillful instructor who has had extensive experience in public speaking and who is familiar with Debating and Parliamentary Procedure. The course is held at an hour which does not conflict with the regular Law School work. Duly enrolled members of the Junior Class are permitted to attend the complete course without additional expense.

Moot Court

In connection with his course in Massachusetts Practice, Associate Dean Allen carries on a Moot Court. Actions are instituted in this court and carried through all the intermediate stages to final judgment in strict accordance with the practice prevailing in the State courts. Students are designated to act in the capacity of clerks, attorneys, parties and of others who regularly make up the personnel of the usual court organization.

Instruction of a most practical nature is thus given to the students in matters appertaining to practice. They are shown just what steps have to be taken preliminary to the trial and how to take them; they have the intricate procedure of the trial forcefully visualized for them; and they are made to carry out in full detail all measures which need to be taken supplementary to the trial in order to realize the benefits of a successful issue or to safeguard the rights of clients in case of an adverse decision.

In a word the purpose of our Moot Court is to give the students actual experience in using in a practical way the knowledge of the law which they get in the other course of our curriculum.

Special Lectures and Special Courses

Special lectures are offered from time to time on subjects not included in the regular program of instruction. These lectures are open to members of the Law School without additional expense.

Special courses are voluntary both as to attendance and the taking of examinations. Such courses are neither required for our degree nor allowed as credit toward it. However, when a student takes and passes satisfactorily a special course, such accomplishment becomes a part of his record and a certificate will be issued in proof thereof.

Bar Examination Review

Ample provision is made for reviewing the work of each year in our regular School schedules; and at the close of the full course—just previous to the bar examination—the whole field of the law is covered by a systematic review of great value to the students. Mr. Asa S. Allen, Associate Dean of the Law School, is most effective in this review work, and his classes assembled for this purpose are largely attended, not only by our own students, but by graduates of the other New England law schools.

In order to make the work of our Law School as valuable as possible, an arrangement has been made whereby each regular member of the Senior Class may attend this review course without additional expense.

This opportunity for free instruction will be available to our students but once, and then only upon the presentation of a card of admission signed by the Dean. Graduates of other law schools who desire to take this review course will arrange therefor personally with Mr. Allen.

Notes

Realizing the great benefit in training as well as in acquiring a knowledge of the subject-matter itself which results from the thorough and systematic keeping of note-books of lectures and cases, the School authorities endeavor at all times to keep this fact forcibly before the minds of the students. Students will find that information as to notes and any other matters appertaining to their work will be gladly furnished to them upon application at the office of the Dean.

Pre-Legal Course

Northeastern College School of Liberal Arts offers an admirable course of study designed to round out the legal and academic knowledge of prospective and present law students and to insure for them a higher degree of success in their chosen lifework. Students are strongly urged to avail themselves as far as possible of this opportunity for special professional training. The pre-legal course contemplates four of the following subjects; but if the student has not time to devote to the full course, a fewer number of subjects may be taken to advantage. A certificate is issued to cover one or more subjects satisfactorily completed.

Program of Pre-Legal Course

1. *Logic.* A study of the mental processes that constitute good thinking, as attention and interest, observation, reflection, defining, assertion, proof, induction. Considerable time is spent in the critical analysis of arguments, with a view to developing the student's power of detecting fallacies and of consistent reasoning in debate.

2. *Public Speaking.* Study of the fundamentals of Public Speaking; delivery of short extracts from masterpieces of oratory, aiming to secure directness, earnestness, and dignity of address.

3. *Argumentation.* Lectures on the principles of debate. Text-book study. Practice in brief-drawing and discussion. Selection and arrangement of material. Principles involved in argument. Public presentation.

4. *Elementary Economics.* This course is intended as a survey of the entire economic field. Chief emphasis is laid on the fundamental definitions, laws, and principles. With these laws and principles as a basis, economic problems are discussed. Some of the important topics discussed are value, prices, profits, rent, interest, wages, money, banking, corporations, tariff, railroads, socialism, and taxation.

5. *Principles of Government and Government in the United States.* This is a course in practical citizenship and considers not so much theoretical government as actual government. Study is given to the text of the Constitution. The following subjects are emphasized: Units of representation, suffrage, party and machine, primary, majority, government, proportional representation, judiciary, colonial and territorial administration, foreign intercourse, commerce and transportation.

6. *Advanced American History.* A topical study of the leading events in the history of America.

7. *Elementary Law.* Outlines of Jurisprudence. Intended for students who expect to enter the profession of law, and for those who desire some knowledge of law for practical purposes. The aim of the course is to give a general view of the whole field of law, with an introduction to its terminology and its fundamental ideas.

Accounting and Kindred Subjects

In modern business the lawyer is required to have a broad experience in business organization as well as in legal affairs in order that he may analyze balance sheets, separate real from fictitious assets, and, in the case of bankruptcy proceedings, make a detailed study of conditions. Lawyers frequently serve as members of the boards of directors of corporations, and with a knowledge of accounting added to their legal training their services are doubly valuable.

The School of Commerce and Finance of Northeastern College aims to complete the education of the lawyer by training him in business affairs; and with that purpose in view offers reduced tuition rates to the Law School graduate. Those who have not the time to take the full course leading to the degrees of B.C.S. and M.C.S. may very profitably pursue special courses in accounting and kindred subjects.

General Information

Tuition

The rates of tuition are $95.00 per year for the Freshman, Sophomore, and Junior years, and $100.00 for the Senior year. Freshmen, Sophomores, and Juniors pay $35.00 on entrance, $30.00 on November 15, and $30.00 on January 15; Seniors pay $35.00 on entrance, $35.00 on November 15, and $30.00 on January 15. These fees include membership in the Y. M. C. A.

Single subjects when authorized will be charged for at the rate of $35.00 for eight months' courses and $20.00 for four months' courses, not including membership in the Association.

The tuition rates in effect during the school year 1918-1919 will continue to apply to those students who were enrolled in the Law School prior to Commencement of 1919, namely: $85.00 for each of the first three years, $90.00 for the fourth year, and $30.00 and $20.00 for the special courses.

Text-books

Text- or case-books are required in most of the courses. These books may be purchased by the student, or, if convenient, the books of the Law Library may be used in the building. It is advantageous for a student to own the books, in order that he may better employ his hours at home.

Note-books and general supplies may be obtained at the office at reasonable rates.

Law Library

The Law Library is located in the Administration Building, and is large, well-equipped and comfortably furnished. In it may be found case- and text-books on all of the subjects taught in the School, as well as on related subjects, the State Reports of Massachusetts and New York, the English Reports, United States Supreme Court Reports, etc. The Library is open daily from 9 a.m. to 10 p.m.

Classrooms

The School has adequate classrooms with diffused light and comfortable furniture.

Dormitories

Nearly three hundred dormitories are provided where men may live with all the comforts of a great hotel. Students may enjoy any or all of these comforts at a minimum charge.

Physical and Recreative Opportunities

The study of law requires close application, a clear head, and persistent effort. In order to do the work successfully, pass the examinations, and finish the four years in good physical condition, one must find time for physical exercise and a reasonable amount of recreation and social enjoyment.

This Law School is the only one of its kind which can meet these conditions fully, owing to its magnificent equipment and great diversity of features. The Y. M. C. A. is all that science, years of experience, high ideals, and careful attention to detail can make it; and it is backed by a physical department and social features of the most attractive and valuable nature. The hours are such that men may go from their business to the building, take some moderate exercise in the gymnasium, or a plunge in the pool, or a shower bath; and after a light lunch go to their classrooms with minds receptive, active and capable of obtaining all that the courses offer. We impress all our students with the necessity of a well-balanced program, mental, physical, and social; and hundreds of our men avail themselves of these advantages. Our gymnasium, the largest in New England, affords every opportunity for keeping in fine physical condition. The swimming pool, bowling alleys, billiard room, and general library, game rooms and special exercise rooms, fencing, boxing, indoor golf, all contribute to the development of the student.

The Association restaurant supplies unusually satisfactory service at reasonable cost.

Reduced Gymnasium Rates to Students

In order to insure the use of the gymnasium to large numbers of students and to bring it within the means of all, special reduced rates have been issued by the Department of Recreation and Health to the students of the School of Law.

GYMNASIUM

Under the plan any student who has paid at least $25.00 for courses of study in the Law School is entitled to the various gymnasium privileges at one-half their regular price. Students using the gymnasium under this arrangement have exactly the same privileges as do regular gymnasium subscribers except that the students are not permitted to use the gymnasium until 5.45 o'clock in the afternoon. This restriction works no inconvenience to the general student body, because very few would be able or would care to use the gymnasium during the day.

Social Life of the School

Among the prominent and valuable features of our Law School is the opportunity for forming the acquaintance of influential men who are attending the Law and other Association Schools. Lectures, receptions and "get together" meetings occur throughout the year.

The Congress, consisting of an unusually able body of men, offers opportunities for debate, discussion, and extemporaneous speaking.

This Law School is the only evening school of the kind which provides the finest advantages for instruction and, at the same time, the attractive features found in the great universities. The student not only obtains a thorough legal training, but enjoys stimulating and refining influences through contact with hundreds of congenial, ambitious, and high-grade men who are pursuing the various courses offered by the Association school-system.

Strikingly effective are these opportunities, and wholly unlike those of a small public or private school, which offers only the professional side of any subject, necessarily omitting the social, physical, and recreative features so valuable in preserving a proper balance and symmetrical development.

Building and Equipment

In the fall of 1913 we moved into our magnificent new building on Huntington Avenue, nearly opposite the Opera House; the land, buildings, and equipment costing approximately one million five hundred thousand dollars. It consists of the

Administration Building

in which are located the lobby, administration offices, directors' room, committee rooms, library, reading and social rooms.

Bates Hall

seating five hundred, with a large stage and complete equipment.

Educational Building

One hundred and ninety-six by fifty-six feet, and six stories high, containing over thirty classrooms, laboratories, social and club rooms, and the small assembly hall.

Natatorium

containing one of the largest swimming pools in America. The pool is 75 feet long by 25 feet wide, is under a glass roof admitting floods of light and sunshine, and is supplied with filtered salt water.

Gymnasium

with running track, twelve laps to the mile, special exercise rooms, hand-ball and squash courts, indoor golf, six bowling alleys, shower baths, special rooms for fencing, wrestling, etc.

Industrial Building

containing machine shop, electrical laboratories and industrial plant.

Graduates

The following men have been granted the degree of LL.B. in the previous years:

Class of 1902

Name	Residence	Passed Bar Examinations
Charles Bartlett	Boston	1901
*William Williams Bartlett	Roxbury	
Corrill Ellsworth Bridges	Charlestown	1902
Dennis Francis Buckley	Georgetown	1903
Timothy John Buckley	Charlestown	1902
Timothy Francis Collins	Arlington	1902
Frederick A. Gaskins	Milton	1903
William John Greene	Cambridge	1902
Mederic Guilbault	Medford	1903
George Latimer	Boston	1903
John Bailey Loring	Dorchester	1901
Charles Henry Lutton	South Boston	1902
Edward MacHarrie	Somerville	1902
*George Alexander McKinnon	Cambridge	1902
George Henry Magurn	East Boston	1903
William Peyton	Boston	1902
Joseph Louis Philip St. Coeur	Cambridge	1902
James Joseph Sheehan	Peabody	1902
James Boniface Vallely	Cambridge	1902

Class of 1903

Name	Residence	Passed Bar Examinations
Robert Ross Thompson Bower	Boston	1903
John Henry Coakley	Chelsea	1903
Arthur Lester Connolly	Boston	1903
Edwin Horace Cooley	Brookline	1903
Isidor Fox	Revere	1903
Walter William Graves	Salem	1902
Reginald Hainsworth	Cambridge	1903
John Edward MacKinnon	East Boston	1903
Francis Louis Maguire	Arlington	1903
Frederick William Otto	Dorchester	1902
George Whitehouse Reed	Roxbury	1903
Julian Seriack	Dorchester	
John Speirs	Dorchester	1902

Class of 1904

Name	Residence	Passed Bar Examinations
Grosvenor Tarbell Blood	Newburyport	1904
Joseph Thomas Brennan	Cambridge	1904
Frederic Carroll	London, England	1904
Alfred Pugh Clark	Allston	1904
Charles Carthage Connor	New Bedford	1904

Name	Residence	Passed Bar Examinations
James William Dolan	Waltham	1904
Peter Jefferson Donaghue	Dorchester	1904
Michael Lawrence Fahey	Charlestown	1904
Carl Gerstein	Boston	1904
August George Gutheim	Washington, D. C.	1904
William Barton Jensen	East Boston	1904
Leo Sidney Jolles	Roxbury	1904
Louis Levin	Boston	1905
Thomas Francis Mansfield	East Boston	1904
George Yenetchi Parker	Charlestown	1902
Ralph Merrill Smith	Somerville	1904
Arthur Asher Sondheim	Roxbury	1904
Henry George Spence	Roxbury	1904
William Joseph Welch	Roxbury	1905
David White	Boston	1904
Jonathan Breck White	Watertown	1904

Class of 1905

John Joseph Attridge	Boston	1906
Walter Watson Chambers	East Dedham	1906
John McLean Crawford	Charlestown	1905
John Francis Dunn	Dorchester	1907
John Henry Ells	Dorchester	1904
Horace Porter Farnham	Peabody	1905
John Gregory Fortune	Malden	
Morris Burton Frankel	Boston	1905
Isaac Gordon	Boston	1905
Samuel Hurwitz	Roxbury	1905
Abram Hyman	Boston	1906
Bernard Charles Kelley	South Boston	1907
*Hugh Boniface McEachern	South Boston	1907
Leonard Wesley Parker	Boston	1906
*Joseph Albert Sedgwick	Quincy	
William Payson Smith	Dorchester	1905
Daniel Sullivan, Jr.	Boston	
*Ralph Lewis Theller	Cambridge	1911
Arthur William Vaughan	Somerville	1905
Alonzo Ernest Yont	Dorchester	1904

Class of 1906

Henry James Angell	California	1906
Sanford Bates	Dorchester	1906
Philip Anthony Brine	Somerville	1906
Dennis Francis Carpenter	Dorchester	
William Francis Connor	Waltham	1906
John Cornelius Cronin	South Boston	1906
Patrick Joseph Dowd	Waltham	1906
Michael Joseph Doyle	Boston	1906
*John Mix Finch	Everett	1907
Hamlet Samuel Greenwood	Lowell	1906
John Hamilton, Jr.	Jamaica Plain	1907

Name	Residence	Passed Bar Examinations
Edward Warren Harnden	Boston	1906
John Michael Hayes	Dorchester	1906
Walter Lawrence Hobbs	Boston	1906
Albert Edward Hughes	Somerville	1907
*Charles Sumner Johnson	South Boston	
Thomas Kelley	Boston	1905
Percy Francis Lannon	Roslindale	1907
George Henry Locke	Colorado	
Francis Maloney	Charlestown	1906
James Alvin McKibben	Dorchester	1905
Peter Francis Minnock	Waltham	1906
Thomas Joseph Moloney	Charlestown	1906
Stephen Francis Morgan	Charlestown	1906
Hubert Aloysius Murphy	Dorchester	1905
John Quinn, Jr.	Boston	1906
John Edward Quinn	Cambridge	1906
Ernest Orlando Raymond	Somerville	1906
Henry Burgess Roberts	Somerville	1906
John Francis Rogan	Charlestown	1905
Charles Henry Rogers	New York	1906
Samuel Rothblum	Dorchester	1906
Joseph Francis Sullivan	Charlestown	1906
John Foster Tufts	Watertown	1908
Arthur Lorrin Woodman	Cambridge	1906

Class of 1907

Name	Residence	Passed Bar Examinations
George Pomeroy Anderson	Boston	1909
*William Henry Barter	Dorchester	1907
*Charles Currier Beale	West Medford	1907
Roscoe Hosmer Belknap	Framingham	
Thomas Francis Brennan	Cambridge	1908
Michael John Carey	Somerville	1908
*John Joseph Coady	Dorchester	1906
Daniel Francis Cunningham	Brighton	1907
Maurice Francis Cunningham	Cliftondale	1907
Michael John Dennen	Winchester	1907
Daniel John Daly	Brookline	1907
John Henry Devine	Brighton	1907
Albert Coolidge Eames	Boston	1908
Walter Frank Foss	Norwood	
Harry LeRoy French	Waltham	1907
Martin Gilbert	Roxbury	1908
Dennis William Hagerty	Boston	1907
Daniel Melbourne Herlihy	Boston	1907
William Hirsh	Dorchester	1907
William Jason Holbrook	South Weymouth	1906
*John Hughes	Boston	
Fernald Hutchins	Dedham	1907
Loring Pierce Jordan	Boston	1907
Arthur Francis Keefe	Everett	1907
Thomas James Lawler	Dorchester	
Everett Charles Lewis	Medford	1907
Frederick William McEnery	Cambridge	1907

Name	Residence	Passed Bar Examinations
Bernard Francis Murphy	Waltham	1909
Edward Clarence Ramsdell	Brighton	1907
Daniel David Rourke	Boston	
Koran Calvin Small	Waltham	1906
William Joseph Stone	Dorchester	1908
Frank Brown Swain	Wollaston	1907
Edward Armstrong Thomas	Winthrop	1908
Henry Patrick Trainor	Waltham	1906
Abraham Hermann Weinstein	Boston	1906
James William Wickwire	Dorchester	1907
Edward Hermann Ziegler	Roxbury	1906

Class of 1908

Name	Residence	Passed Bar Examinations
Arthur Wykeham Ashenden	Dorchester	1909
Benjamin Franklin Beale	Boston	
Edward Sherman Bennett	South Boston	1908
Francis Henry Blackwell	Boston	1907
Robert Campbell	Boston	1908
Henry Elton Chamberlin	Boston	
Francis Aloysius Cronin	Roxbury	
William John Daly	Winchester	1907
John Bernard Dayton	Somerville	1908
James Michael Driscoll	Brookline	1907
James Edward Farrell	West Newton	1908
Charles Augustus Ferguson	Malden	1909
Edward Ferguson	Cambridge	1909
Edward Richard Flavell	Boston	
Wallace Alfred Gleason	West Roxbury	1908
Michael Aloysius Henebery	Worcester	1908
George Willard Hopkins	Concord	1909
Charles Edward Houghton	Hyde Park	1909
Morris Jolles	Roxbury	1908
Max Manuel Kalman	East Boston	1910
Richard Ernest Kent	East Boston	1908
Francis Warren Kimball	Chelsea	1908
*Howard Newton Legate	Roxbury	1908
Harrison Loring, Jr.	Roxbury	1908
Edwin Tibbets Luce	Arlington	1908
Edward Aloysuis McEttrick	Brookline	1907
*Charles Leroy Moore	Malden	1907
Thomas Vinson Nash	Weymouth	1910
William Nelson	Boston	1907
Edward Waterman Raymond	Boston	
Fred Louis Roberts	West Somerville	1909
Elmer Gould Royce	Northboro	1909
Charles Marcus Smith	Boston	1908
Robert William Stanley	Boston	1908
Thomas Francis Sullivan	Cambridge	1910
Nelson Barnard Todd	Lynn	1908
Frank White Tucker	Somerville	1908
George Edward Walker	Wakefield	1908
Jacob Wasserman	Boston	1907
Otto Aloysius Wehrle	East Boston	1908

Class of 1909

Name	Residence	Passed Bar Examinations
Thomas Donald Adair	Roxbury	1909
Henry Nathaniel Andrews	Boston	1909
Williams Brooks Baker	Danvers	1910
Gilbert Bezanger	Winthrop	1909
Thomas Herbert Bilodeau	Boston	1909
Henry Victor Charboneau	Lowell	1909
Charles Alfred Colton	Winthrop	1909
Henry Wesley Davies	Ballardvale	1908
Samuel Davis	Boston	1907
Ernest Doane Easton	Providence, R. I.	
Chester Everett	Boston	1909
David William Everett	Boston	1909
Andrew Franklin Faden	Jamaica Plain	
Thomas Jefferson Fitz	Melrose Highlands	1911
William Philip French	West Somerville	1908
Don Gleason Hill, Jr.	Dedham	1909
Perry Brooks Howard	Watertown	1910
William Francis Howard	Dorchester	1909
Lawrence Woodbury Huse	Boston	1909
Daniel Francis Lynch	Roxbury	
James Francis McDermott	Boston	1909
Frank Eliot Marble	Lynn	1910
George Nelson	Boston	1910
William Ignatius Norton	Boston	1909
Charles Joseph O'Connell	Worcester	1909
James Lewis Roche	Lincoln	1909
George Edward Roewer, Jr.	Boston	1909
William De Forest Ross	Wollaston	1909
William Thomas Salter	Boston	1909
Arthur Lawrence Stevenson	Newton	1908
William Booth Stevenson	Newton	1909
James Aloysius Sullivan	Boston	1909
Dana Scott Sylvester	Brookline	1908
James Irwin Tucker	West Somerville	
Alexander Thurrott Walker	Forest Hills	1909
Robert Winthrop Youny	Boston	1909

Class of 1910

Walter Pennington Abell	Roslindale	1910
William Antcliffe Bellamy	Taunton	1910
John Bianchi	Newtonville	1910
Lyman Warren Brooks	Watertown	1911
William Herbert Burke	Worcester	1911
Ralph Norman Butterworth	Revere	1909
James William Byron	Concord	1910
John Bernard Canfield	Newton	1910
George Henry Carrick	Cambridge	1910
James Thomas Carter	Dorchester	1910
Fred William Cousins	Medford	1910
Adolph Isaac Dinner	Roxbury	1910

Name	Residence	Passed Bar Examinations
Shirley Howe Elbridge	Waltham	
Shirley Howe Eldridge		
William Caleb Frye	Winthrop	1910
James Clarence Funnell	Boston	1909
Jos. Julian Orphee Gingras	Lynn	1910
Walter Howard Gleason	Watertown	1910
Ralph Clifton Glidden	Reading	1910
*Thomas Max Gurin	Boston	1911
Frank Howard Hallett	Dorchester	1910
John Emmett Hanlon	Dorchester	1910
Thomas Aloysius Henry	Salem	1910
William Martin Henry	Salem	1910
Jeremiah George Herlihy	Roxbury	1910
Ralph Eugene Hiland	Everett	1910
George Preston Hitchcock	Brookline	1910
Jesse Allen Holton	Boston	1910
William Everett Horne	Quincy	1910
William Everett Howe		
Guy Atwood Jackson	Dorchester	1910
George Marshall Jewell	Everett	1910
Louis Agassiz Jones	West Somerville	1910
Wilbur Aaron Jordan, Jr.	Dorchester	1910
Maurice Kronick	Boston	1910
Henry Lawrin	Boston	1910
Harold Wesley Loker	Swampscott	1910
Herman Albin MacDonald	Beverly Farms	1910
James Preston Mackin	Boston	1912
Patrick Joseph Madigan	Boston	1910
Frederick Huntley Magison	Haverhill	1910
Augustus Vincent Murphy	Dorchester Centre	1910
Alexander William Murray	Cambridge	1910
Albert Leslie Partridge	Waltham	1910
William John Pike	Chelsea	1910
Peter Ratzoff	Roxbury	1910
Arthur Bickford Rigney	Haverhill	1910
Allan Robinson	Revere	1910
Elmer Ernest Spear	Everett	1911
James William Sweeney	Quincy	1910
James William Spicer	Melrose Highlands	
Israel Mark Ullian	Roxbury	1910
Robert Comey Van Amringe	Roxbury	1910
John Joseph Ward	Medford	1910
Maynard Addison Wood	West Somerville	1910
Frank Hubert Wright	Boston	

Class of 1911

David James Aaron	Allston	1911
Philip Julius Aaronofsky	Roxbury	1911
John Alfred Anderson	Boston	1911
Charles William Babson	Dorchester	1911
Edward Holbrook Baker, Jr.	Cambridge	1911
George Grant Brayley	West Somerville	1910

Name	Residence	Passed Bar Examinations
Leslie Nicholas Brock	Cambridge	1911
Winslow Page Burhoe	Somerville	1910
Richard Walter Burnes	Everett	1911
Moses Caplan	Boston	1911
Hugh Augustus Carney	Roxbury	1911
Benjamin Harrison Chertok	Dorchester	1911
Edgar Weston Cobb	Medford	1911
Joshua Aaron Crawford	Boston	1911
Otis John Auguste Dionne	Walpole	1911
Harvey Alexander English	Jamaica Plain	1911
Harry Alexander English		
Percival Fitzgerald	Mattapan	1912
David Flower	Roxbury	1911
William Forbes	Boston	1911
William Joseph Geegan	West Newton	1910
William Francis Hill	Dedham	1911
Henry Hopkinson	Jamaica Plain	1911
Frederick Austin Kennett	Dorchester	1911
Alfred Carl Malm	Brighton	1911
Frederick William McGowan	Medford	1911
John Henry Mattson	Lynn	1910
Andrew Potter Nichols	Fall River	
Orton Abner Peck	Boston	1911
William Henry Peterson	Cambridge	1911
Chester William Pike	Dorchester	1912
John Isaac Preston	Wakefield	1911
George Prussian	Roxbury	1911
Frederick Robinovitz	Boston	1911
John William Roome	Dorchester	
Louis Joseph Rouleau	Jamaica Plain	1911
William Theis Smith	Somerville	1911
Edmund Michael Stanton	Roxbury	1912
Theodore Einar Stevenson	Roxbury	1910
George Burchstead Tinkham	Roslindale	
Lewis Augustine Twitchell	Dorchester	
Calvin John Upham	Dorchester	1911
Samuel Parsons Vatcher	Lynn	1911
Howell Brackett Voight	Dorchester	
James Andrew Waters	Newton Centre	1910
Alfred Mayer Weismann	Jamaica Plain	1911
Augustine Walter Welch	Watertown	1911
Alfred Little West	Somerville	1911
Charles Chester Willard	Cambridge	1912
Ralph Howard Willard	Boston	1911
James Graham Wolff	Allston	1911

Class of 1912

Asa Samuel Allen	Belmont	1912
Harry Lee Bagley	Brookline	1912
James Thomas Baldwin	East Braintree	1912
Charles Edward Baltzo	Melrose	
Henry Albert Bascom	Malden	1912
William Henry Bazley	Everett	1912

Name	Residence	Passed Bar Examinations
Samuel Tompkins Bennett	Malden	1912
Robert Edward Bigney	South Boston	1912
John Joseph Burke	Boston	1912
Warren Frederick Card	Lynn	1912
Cyrus Stewart Ching	Boston	1912
George Cohen	Somerville	1912
John Joseph Conway	West Roxbury	1912
Lester Wilkins Cooch	Everett	1912
Ralph Bertrand Currier	Chelsea	1912
Wilfred James Doyle	Mattapan	1912
Leo Joseph Dunn	Roslindale	1911
John William Eldracher	Boston	1912
George Robert Ellis	Foxboro	1912
Norman Farquhar	Boston	1912
Philip Joseph Feinberg	Boston	1912
Frank Hervey Fittz	Waltham	1912
Frank Freundlich	Boston	1912
John Francis Gannon	Worcester	1912
Abraham Goldberg	Boston	1911
Harry Klauser Good	Roxbury	
Charles Emmett Gorman	Roslindale	1912
Reuben Bertram Gryzmish	Boston	1912
Charles Edward Halliday, Jr.	Lynn	1912
John Joseph Haney	Medford	
Joseph Charles Hannon	West Newton	1912
Edward Lavant Harris	Arlington	1912
Walter Joseph Hendrick	Boston	1912
Frederick Hoitt	Boston	1912
Gustav Ferdinand Hollestein	West Roxbury	
William Frank Joseph Howard	South Boston	1912
Myer Harry Isaacson	Dorchester	
Walter Scott Jardine	Arlington	
Frank Roland Keith	Dorchester	1912
Luke Joseph Kelley	Jamaica Plain	
Samuel Thomas Lakson	East Boston	1912
Timothy Francis Leonard	Charlestown	1913
Finch Elbert Lewis	West Somerville	1912
Henry Nathaniel Longley	East Braintree	1912
John Michael Lyons	East Weymouth	1912
Thomas Bernard McCaffrey	Brookline	1912
William John MacInnis	Gloucester	1912
Abner Sterling McLaud	Lynn	1912
Arthur Hawes McLearn	Dorchester	1912
John Cornelius Mahoney	Worcester	1913
William Raymond Mahoney	Cambridge	
George Albert Mansfield, Jr.	Waltham	1912
Leslie Rogers Moore	Newton	1912
Alexander Nagle	Boston	1912
Reginald Ebenezer Peters	Cambridge	1911
Benjamin Rabalsky	Boston	1911
Arthur Elmer Reimer	South Boston	1912
Ralph Henderson Robb	Boston	1912
James Percy Roberts	Dedham	1911
Michael Seretto	Boston	

Name	Residence	Passed Bar Examinations
Leon Leland Silbert	Roxbury	1911
Nicholas John Skerrett	Worcester	
Walter McCabe Smith	Cambridge	1912
George Edwin Stebbins	Boston	1911
Richard Rogers Sullivan	Charlestown	1912
James Francis Terry	Boston	1917
Ralph Carl Thulin	Brighton	1912
Frederick J. Turner	California	
Nathan Ullian	Boston	1912
Joseph Vecchioni	Boston	1912
Charles Gordon Whitcomb	Allston	
Harold Willis	Brookline	1912
Edward Joseph Ziegler	East Dedham	1912

Class of 1913

Name	Residence	Passed Bar Examinations
Frank Auchter	Boston	1913
Daniel Asher	Worcester	1912
Harold Clifton Berry	Dorchester	
Walter Francis Blaser	Somerville	1913
Edgar Alden Bowers	South Framingham	
Aaron Philip Brest	East Boston	1913
Philip Augustine Carroll	Dorchester	1913
William Joseph Carroll	Cambridge	1913
Fred Martin Colby	Everett	1913
Robert Shaw Corrigan	Natick	1913
Lyman Croan	Roxbury	1913
John Dodd Daly	Salem	1913
John Patrick Dimond	South Boston	
Roy Leslie Duren	Boston	
Fred Winslow Fisher	Medford	1913
James Francis Flaherty	Brighton	1913
James C. Flannery	Boston	1913
John Daniel Fogarty	Roxbury	1913
John Charles Gilbert	West Somerville	1913
Morris Hillel Freidson	Roxbury	1913
Alfred Raphael Ghiloni	Marlboro	1913
Martin John Heiligmann, Jr.	West Roxbury	1913
*Ralph Waldo Hobbs	Quincy	1913
George Frank Howland	South Framingham	1913
Lewis Hyman	South Boston	1913
Paul Norris Jewett	Dorchester	1913
William Francis Johnston	Somerville	1912
Max Jolles	Roxbury	1912
George William Kenney	Wakefield	1913
Albert Edwin Lamb	Melrose	1913
A. Robert Martin	Forest Hills	1913
James Gervin Moran	Mansfield	1916
Michael Joseph Mulkern	South Boston	1913
Norman David Nexon	Boston	1913
John Saunders Climo Nicholls	East Boston	1913
Joseph Sanderson Pickford	Dorchester	1913
William Amber Reed, Jr.	Chelsea	1913

Name	Residence	Passed Bar Examinations
James Frederic Rollins	Dorchester	1913
Josiah Hirsh Rosenberg	Boston	1913
Israel Ruby	Chelsea	1913
Benjamin Joseph Shoolman	Malden	1913
William David Stein	Malden	1913
John Gerald Sullivan	Medford	1913
Daniel Gordon Thompson, Jr.	Hyde Park	1913
James Frederick Tobin	Roxbury	1913
Carlton Walen Wonson	Boston	1913
Jacob Benjamin Zuckernik	Boston	1913

Class of 1914

Robert Ernest Archibald	Dorchester	1913
Charles Elmer Bartlett	Boston	1913
Samuel Bergson	Dorchester	1914
John Thomas Comerford	Brookline	1913
Thomas Francis Connolly	Roslindale	1914
Samuel Henry Davis	Reading	1913
Clement Charles Desaulniers	Salem	1915
William Benjamin Doggett, Jr.	Dorchester	
James Michael Downey	Dorchester	1913
Joseph Michael Downey		
Robert Saunders Dowst	West Virginia	1914
Nathan Efron	Boston	1913
Carl Rudolph Felton	Boston	1916
Frank Hugh Flagg	Dorchester	1914
John Joseph Flaherty	Lowell	1913
Leslie Nathaniel Gebhard	Everett	1916
Isaac Harold Greenburg	Everett	1913
John Edward Hand	Cambridge	1913
Ralph Rodney Harris	Leominster	1915
Reuben Harris	Dorchester	1913
William Martin Heiligmann	Roxbury	
Thomas Francis Edward Higgins	Newton	1914
Roy Howard Hoffman	North Reading	1914
Frank Radford Hope	Melrose	1915
John Jeremiah Humphrey	Dorchester	1915
Harry Eugene Jenkins	Boston	
Harold Pratt Litchfield	Cohasset	1913
William MacConnell	Dorchester	1916
Richard Henry MacDonald	Randolph	
Harry Benjamin Mendelsohn	Dorchester	1913
Michael Joseph Miles	East Boston	1916
Robert Benjamin Mount	Dorchester	1913
John Sidney Patton, Jr.	Boston	1913
Peter Williams Pezzetti	Boston	1913
Arthur Carter Pickering	Salem	1914
Maurice James Power	Charlestown	1915
Carl Fisher Prescott	Quincy	
Frank Xavier Reilly	Westboro	1915
John William Robbins	Somerville	1913
Harry L. Saipe	Chelsea	
Philip Samuels	Malden	1913

Name	Residence	Passed Bar Examinations
Walter Simonds	Milton	1914
George William Skuse	Boston	
Charles Harrison Sloan	Waverley	1913
Max Smith	Boston	1914
Milton Anthony Stone	Boston	1913
William Allen Stone	Dorchester	1914
Lucius Byron Weymouth	Hyde Park	1914

Class of 1915

Walter John Anderson	Wakefield	1915
William Ambrose Arthur	Revere	1917
Pierce Brigham Bennett	West Medford	1916
George Frederick Blood, Jr.	Hyde Park	
James Alfred Brickett	North Cohasset	1915
Benjamin Irving Brudno	Dorchester	1915
Walter Alfred Burnham	Somerville	1915
Daniel Francis Collins	South Boston	1916
William Augustine Connelly	East Boston	
John Alfred Crowley	Lowell	1915
James Edmund Curry	Cambridge	1915
Leopold Harris Dinner	Roxbury	1913
George Joseph Ganer	Roslindale	1915
Borouch Osher Gofung	Boston	1915
Harry Goldkrand	Jamaica Plain	1914
Howard Allison Gray	Somerville	1915
James Gerard Harnedy	Brookline	1916
Joseph Hubbard Hefflon	Winchester	1916
Ralph Henry Hermann	Boston	
Allan Clare Inman	West Somerville	1915
James Edward Karins	Boston	1916
Walter Albert Lambert	Allston	1915
John Joseph Lillis, Jr.	Everett	1915
Brent Bradley Lowe	Roxbury	1915
Leo Francis McAleer	Newton	
Thomas Florence McCarthy	Waltham	1916
Benjamin Harrison McKinley	Lowell	1916
Gustave Harold Madsen	Woburn	1915
Frederick Roberts Makepeace	Malden	1915
Rupert Lamert Mapplebeck	Roxbury	1915
Clifford Orland Mason	Winchester	1916
John Jones Murray	Arlington	
*Frank Joseph Neylan	Somerville	1915
A. Lincoln Niditch	Boston	1915
Robert Clement Orpin	Medford	1913
George Stephen Parker	Dorchester	1916
Seneca Arthur Paul	Woburn	Maine Bar 1916
Samuel Pitchel	Boston	1917
William Henry Powers, Jr.	East Boston	1917
Lynn Melvin Ranger	Lynn	1915
Joseph Edward Riley	Hopkinton	1914
Leon Rubenstein	Dorchester	1915
Simon Schwartz	East Boston	1916
Mark Shain	Roxbury	1915

Name	Residence	Passed Bar Examinations
Bernard Shalit	Dorchester	1920
Isaac Edward Simons	Roxbury	1916
Howard Yeaton Stearns	Arlington	
Israel Stolper	Chelsea	1917
Dean Judson Tolman	Boston	1917
*Frank Harvey Towne	Salem	
Alonzo Joseph Ward	Cambridge	
Albert Franklin Welsh	Ipswich	1913
George Franklin Wenrich	Malden	1917
Harry Edward Wheeler	Boston	1916
Albert Freeman Wigley	Dorchester	
George Wilinsky	Boston	1915

Class of 1916

Jacob Lewis Aaron	Allston	1916
Albion Americus Anderson	Melrose Highlands	1917
Frederick Russell Bartlett, Jr.	Roslindale	
Enos Ralph Bishop	Dover, N. H.	
John Stanhope Ray Bourne	Cambridge	1916
Herman Copeland Bowser	Arlington	1916
*Irving Nelson Burbank	Belmont	
Frederick Walter Cobb	Newton Upper Falls	
Benjamin Cohen	Roxbury	
David Pulsiver Colville	Roxbury	1917
Daniel Florence Crowley	Salem	1916
Richard Brenton Currie	Boston	1916
Lewis Freeman	Cambridge	1917
Thomas Roland Freeman	Lynn	1916
William Michael Gaddis	Dorchester	
H. Hart Gilfix	Newton	1916
Thomas Daniel Gleason	Roxbury	1916
Samuel Gottlieb	Everett	1916
David Greer	Newton	1916
*Henry Jordan Greer	Pawtucket, R. I.	1917
Evan Warren Griffiths	Cambridge	
Charles Chamberlain Grimmons	Somerville	
John Justus Hayes	Allston	1915
Alfred Harris Heininger	West Somerville	1917
Moses Hochberg	Dorchester	1918
Arthur Viall Jones	Somerville	1916
Herman Axel Kinder	Cambridge	
William Tucker Martin, Jr.	Marblehead	1916
John Henry Moran	Brookline	1916
William John Edward Mulcahy	Cambridge	1916
Alfred Francis Mulvihill	West Newton	1917
John Joseph McCarthy	Salem	1916
Robert Andrew MacLellan	Dorchester	1918
Chester Weston McNeill	Somerville	1917
James Edward McVann	Peabody	1916
Edward Abraham Nathanson	Roxbury	1916
John Joseph Norton	Jamaica Plain	1916
Benjamin Novack	Dorchester	1916
Jeremiah Francis O'Neill	Charlestown	

*Deceased.

Name	Residence	Passed Bar Examinations
James Aloysius Pagum	Malden	1916
John Austin Reilly	Dorchester	
Thomas Michael Reynolds	Roslindale	1915
Bartholomew Joseph Ronan	Peabody	1917
William Charles Rosen	Roxbury	1916
John Bryant Sawyer	Wakefield	1916
David Frederick Sibulkin	Boston	
Harry Cleverly Slocomb	Winthrop	1917
Maurice Thorner	Cambridge	1917
John Joseph Walsh, Jr.	Boston	1916
Walter Thomas Walsh	South Boston	1917
Percy Leroy Wetmore	West Somerville	1917
William Colby Wildey	West Somerville	1917
Charles Thomas Willock	South Boston	1917

Class of 1917

Name	Residence	Passed Bar Examinations
Ephraim Tyler Albert	Dorchester	
Maurice Ernest Andelman	Cambridge	
Walter Newton Benson	Malden	1916
David Harold Bloom	Dorchester	
Herbert George Brower	Waltham	1917
Bertram Abel Brown	Quincy	1918
Terence Charles Carbin	Lynn	
David Julius Cohen	Roxbury	1918
Hans Christensen	Newton	
John E. Conway	Jamaica Plain	1917
John Francis Daly	Somerville	1917
Roy Chandler Davis	Dorchester	1917
William John Donahoe	Brighton	1917
Thomas Edward Doyle	Roxbury	1918
William John Doyle	Roslindale	
Frank Joseph Duffy	Quincy	1918
Charles Fairhurst	West Somerville	1917
Charles Edward Fay	Jamaica Plain	1917
Jeremiah Gilman Fennessey	Boston	
Harold Maxwell Fine	Roxbury	1918
James Roberts FitzGerald	Belmont	1917
Roland Willard Fletcher	Mattapan	1918
Lloyd Albinus Frost	Cambridge	1917
John Edward Gilmore	Brockton	1917
E. Max Gladstone	Roxbury	1917
Vincent Regulus Grainger	Cambridge	1918
George McClellan Harrigan	Lowell	
Patrick Augustine Hayes	Lowell	1917
Joseph William Hickey	Shrewsbury	1917
Maurice Louis Hoberman	Boston	
James Irving Holsberg	Roxbury	
William Dudley Hopkins	Boston	
Henry Adolphus Horn	Boston	1917
Abraham Kamberg	Boston	1916
Joseph Henry McCann	Boston	
William Henry McDonnell	South Boston	1916
Richard Joseph Martin	Arlington Heights	1917
Samuel Maylor, Jr.	East Boston	1917
Frederick Arnold Moeller, Jr.	Cambridge	1917

Name	Residence	Passed Bar Examinations
Farquharson James Muir	Winchester	1917
Ambrose Norwood Nickerson	Hyde Park	1917
Albert Lawrence Olson	Waltham	
Raynor Lesley Osborne	Everett	
Edward Willard Phippen	South Boston	
Abram Resnick	Boston	1918
Allen Tucker Rogers	Everett	1917
Ernest Charles Roos	Brookline	
Samuel Rosenberg	Boston	1917
Philip Rosenthal	Dorchester	1917
Maxwell Sawyer	Boston	1919
Joseph Harry Seaman	Roxbury	
Benjamin Simons	Boston	
Timothy Daniel Sullivan	Cambridge	1917
Warren Russell Symonds	Salem	
Harold Eugene Jeanerette Tarr	Somerville	
Clarence Milton Whipple	Boston	1917
John Philip White	Roxbury	1917
Delphin Francis Young	Brookline	
William Zisman	Roxbury	1918

Class of 1918

Irving Bertman	Dorchester	1918
Sidney Arthur Bowdidge	Somerville	
Dennis Benedict Burns	Boston	
Daniel David Carmell	South Boston	
Edward Joseph Casey	Dorchester	1918
Edwin Atwood Chalmers	Allston	1919
Paul Lorchester Cifrino	Dorchester	1920
Frederick James Cloutman	Salem	1918
Charles Henry Coleman	Roxbury	1918
Robert Croan	Roxbury	1918
Maurice Walter Dennison	Allston	
John Isadore Goldberg	Revere	
Louis Benjamin Goldman	Roxbury	1919
John Joseph Gorman	Woburn	1918
Ernest Alfred Hale	Brookline	1918
Francis Bowman Hawley	Waltham	
John Gerard Herlihy	Boston	1919
Ernest Winslow Jones	West Somerville	1918
Emanuel Rane	Pittsfield	1919
William Francis Kane	Dorchester	1918
Joseph Levine	Malden	
James Arthur Liacos	Peabody	1918
John Patrick McBride	Waverley	1918
Joseph Wallace Mahony	Revere	
Harry Mandelstam	Roxbury	1918
George Thomas Marvin	West Somerville	1917
Francis Louis Norman	South Boston	1919
John Francis O'Connell	Dorchester	
William Joseph O'Neill	Boston	1918
Albert Spurzheim Olsson	Brighton	
Fred Don Pollard	Beachmont	1919
Bernard Radin	Beachmont	

Name	Residence	Passed Bar Examinations
Joseph Riley	Boston	1918
James Francis Rockett	Boston	
Ned Maurice Russell	Medford	1918
Jacob Abraham Shure	Dorchester	1918
Morris Jeremiah Smith	Roxbury	1919
Benjamin David Solomon	Allston	1918
Charles Augustus Southworth	Swampscott	1918
Edgar Saxon Stanley	Needham	
Chester Chandler Steadman	Cambridge	1918
*Richard Loud Stubbs	Wollaston	1918
Arthur Vincent Sullivan	Dorchester	1919
Patrick Hugh Tenney	Wakefield	
Albert Theodore Wall	Worcester	1918
Herman Frederick Wohlschlagel	Roxbury	1919
Leon Irving Wood	Needham	
John Dean Wright	Boston	

Class of 1919

Robert Edwards Annin, Jr.	New York	
Thomas Francis Bannon	Waltham	
Louis Samuel Blackstone	Dorchester	1920
Ralph Clinton Bush	Cambridge	1919
Bernard Francis Carolan	Boston	
James Osborn Credle	Cambridge	1920
Francis Nichols Cummings	Dorchester	1919
Patrick Joseph Delaney	Cambridge	1919
Solomon Finkelstein	Dorchester	
James Ingersoll Forsyth	Medford	
Stanley Delmont Foster	Boston	
Emanuel Goldberg	Roxbury	1919
William John Kenney	Brighton	1919
Horace Kidger	Newtonville	
Raymond John Lavelle	Lowell	1919
Hyman Magazine	Boston	1919
Sidney Chester McIntire	Boston	1919
John Leander McMillan	Springfield	1919
Thomas Francis Megan	Cambridge	1919
Robert Lewis Odom	Lynn	1919
John Boyle O'Hare	Brighton	1919
James O'Keefe	Boston	1919
Emanuel Olson	East Boston	1919
Joseph Reder	Lawrence	1920
Jacob M. Reed	Lynn	1919
George Richmond	Boston	1919
Allan Robinson	Boston	1919
John Rogers	Cambridge	
John Henry Rooney, Jr.	Woburn	1919
Harry Rubin	Boston	
Philip Everett Sage	Cambridge	1919
William Walter Scott	Beachmont	1920
Arthur William Sullivan	Boston	1919
Alfred Abraham Tucker	Boston	1919
Harvey Edward Weir	Medford	1919
Louis Roger Wentworth	Melrose	1919

GENERAL DEPARTMENTS

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Department of Recreation and Health

This department offers the *best recreation* that *re-creates.* Privileges as follows: Three Gymnasiums, Swimming Tank of Filtered Salt Water, Baths of all kinds. Classes of Music, Six Bowling Alleys, Tennis—Indoor and Out, Handball, Squash, Indoor Golf, Athletics—Indoor and Out, Basketball and Games, Boxing, Wrestling and Fencing. Best of instruction. Medical direction. Come in any time.

Department of Religious Work

In order that young men may secure a well-balanced development and attain the true foundation for successful living, the Association advises each member so to plan his schedule that he may enter into one or more of the following activities:

Character Building Classes
Young Men's Sunday Forum
Gospel Team
Personal Interviews
Training for Christian Service
Lectures and "Talks"
Workers' Library
Twenty-four-Hour-a-Day Club

Department of Social Work

The attention of members is called to the many opportunities in the Association for social service, and the following social features:

A Newly Equipped Game Room
The Association Congress
Popular Social Evenings
Concerts and Entertainments
El Club Sarmiento (Pan-American Club)
The Land and Water Club

Department of Counsel and Placement

Advice given to young men concerning their vocational future, and efforts made to place them in positions best adapted to their varied abilities. It also acts as a clearing-house for young men seeking work, and employers desiring to engage reliable help. Its service is not limited to members, but the latter are given liberal discounts and effort is made to notify them when good positions are open.

Boys' Division

The Boys' Division is made up of boys from Greater Boston, whose needs are ministered to by a force of young men who have made a careful study of "boyology." The division comprises boys from twelve to eighteen years of age, whose needs are studied and whose problems we try to solve. Activities are conduced along social, physical, educational, and spiritual lines.

WALKER LITH. & PUB. CO.
BOSTON

NORTHEASTERN COLLEGE

CATALOGUE
OF THE
School of Commerce and Finance
1920-21

YOUNG MEN'S CHRISTIAN ASSOCIATION
316 Huntington Avenue
BOSTON, MASSACHUSETTS

Northeastern College

Boston Young Men's Christian Association

With Divisions at the Bridgeport, New Haven, Providence, Springfield, and Worcester Associations. Branch at Lynn Association.

School of Law[1]

Evening Sessions

Established in 1898; incorporated in 1904. Provides a four-years' course in preparation for the Bar, and grants the Degree of Bachelor of Laws.

School of Commerce and Finance [2]

Evening Sessions

Complete preparation for state examination for Certified Public Accountants and for business executives.

Four year courses including Accounting, Auditing, and Business Administration, leading to degrees of Bachelor of Commercial Science and Master of Commercial Science.

Co-operative School of Engineering

Day Sessions

Four-year courses in Civil, Mechanical, Electrical, and Chemical Engineering leading to the Degrees of Bachelor of Civil Engineering; Bachelor of Mechanical Engineering; Bachelor of Electrical Engineering; and Bachelor of Chemical Engineering. The school operates in co-operation with engineering firms. Students earn while learning. Open to high school graduates.

Evening School of Engineering [3]

Evening Sessions

A school offering three-year courses in Civil, Mechanical Electrical, Chemical, and Structural Engineering.

School of Liberal Arts

Evening Sessions

Courses of college grade in English Composition, Literature, Ancient and Modern Languages, Mathematics, History, Economics, Government, Psychology, Logic, Philosophy, Education, Public Speaking, Journalism, and others. Professors and instructors of New England colleges are engaged for this work. This school enables young men to pursue in the evening, courses of instruction of the same high standard as those conducted by the best day colleges.

For catalogs and complete information address the Secretary, 316 Huntington Avenue, Boston, Massachusetts, or the nearest Division or Branch where the School is located.

Frank Palmer Speare, M.H., President

---

[1] Also located at Worcester, Springfield, and Providence.

[2] Also located at Worcester, Providence, Springfield, New Haven, Bridgeport, and Lynn.

[3] Also located at Worcester, Springfield, and New Haven

NORTHEASTERN COLLEGE

CATALOGUE
OF THE
SCHOOL OF COMMERCE AND FINANCE
1920-1921

Young Men's Christian Association
316 Huntington Avenue
BOSTON, MASSACHUSETTS

Calendar for 1920-1921

1920	Sept. 13	Competitive examinations for high school graduates. (See page 14)
	Sept. 13, 15 and 22	Entrance Examinations for advanced credits toward degrees. (See page 11)
	Sept. 6 to 17	Registration of upper class students.
	Sept. 13 to 17	Examinations for Removal of Conditions.
	Sept. 20	Opening of First Semester (upper classes.)
	Sept. 6 to 24	Registration of Freshmen.
	Sept. 27	Opening of First Semester (Freshman).
	Oct. 12	Columbus Day.
	Nov. 25	Thanksgiving Day.
	Dec. 17	Christmas Vacation Begins (9.15 P. M.).
1921	Jan. 3	Christmas Vacation Ends (7.15 P. M.).
	Feb. 22	Washington's Birthday.
	Apr. 19	Patriots' Day.
	May 23	Final examinations commence.
	May 30	Memorial Day.
	June 15	Commencement Exercises.

School of Commerce and Finance

Corporation

Officers

ARTHUR S. JOHNSON, *President*
F. R. CARNEGIE STEELE, *Vice-President*
LEWIS A. CROSSETT, *Treasurer*
GALEN D. LIGHT, *Secretary*

Directors

Wilman E. Adams, General Secretary of the Boston Y. M. C. A.

George L. Bishop, of the firm of Storer & Bishop, Certified Public Accountants.

William C. Chick, Estabrook & Co.

Russell S. Codman, of the firm of Aspinwall & Codman.

Morgan L. Cooley, of the firm of Cooley & Marvin, Certified Public Accountants.

Lewis A. Crossett, President of the Crossett Shoe Company.

Albert H. Curtis, General Agent, N. E. Mutual Life Insurance Company.

Arthur S. Dewing, Professor of Economics, Northeastern College.

Franklin W. Ganse, Manager of Home Office Agency, The Columbian National Life Insurance Company.

Arthur S. Johnson, President of the Boston Y. M. C. A.

William S. Kemp, Treasurer of the Holtzer-Cabot Electric Company.

George C. Lee, of the firm of Lee, Higginson & Co.

Henry G. Lord, of the firm of Lord & Nagle.

William E. Macurda, of the firm of Garfield & Proctor Coal Co.

J. Edward Masters, New England Manager of the firm of Price, Waterhouse & Company, Certified Public Accountants.

Walter B. Mossman, of the firm of R. H. Stearns & Company.

Silas Peirce, President of Silas Peirce Company.

Sabin P. Sanger, of the firm of Curtis & Sanger.

George S. Smith, President of the New England Power Company and Ex-President of the Boston Chamber of Commerce.

Frank Palmer Speare, President of Northeastern College.

F. R. Carnegie Steele, of the firm of Patterson, Teele & Dennis, Certified Public Accountants.

Stanley G. Wellington, of the firm of Wellington, Sears & Co.

Robert Douglas, of the firm of Robert Douglas & Co., Certified Public Accountants.

Executive Committee

F. R. Carnegie Steele, F.C.A., C.P.A., *Chairman*
Morgan L. Cooley, C.P.A.
J. Edward Masters, C.P.A.
William S. Kemp
Franklin W. Ganse
Frank Palmer Speare, M.H.
Arthur S. Johnson

HOME OF NORTHEASTERN COLLEGE, ASSOCIATION BUILDING, BOSTON

LYNN, MASS.

SPRINGFIELD, MASS.

ASSOCIATION BUILDINGS
HOUSING
NORTHEASTERN COLLEGE
DIVISIONS

BRIDGEPORT, CONN.

NEW HAVEN, CONN.

WORCESTER, MASS.

PROVIDENCE, R.I.

What is Northeastern College?

TWENTY-FIVE years ago, a group of workers in the Boston Y. M. C. A. started a few miscellaneous evening courses of study. These were originally of grammar school grade and enrolled only a few hundred students. At the close of the twenty-five years, we find an educational work covering courses from the most elementary grammar school work up to the most technical college subjects. We find an evening college for employed men, recognized by the Commonwealth of Massachusetts as worthy of granting degrees upon the completion of these courses,—a student body of five thousand, instead of a few hundred,—five schools of college grade: The School of Law, established in 1898; the Evening School of Engineering, established in 1906; the School of Commerce and Finance in 1907; the Co-operative School of Engineering, 1909; and the School of Liberal Arts, 1916. Buildings and equipment worth half a million dollars are at the service of the students. Instructors of liberal education and of actual experience in the line to which they are assigned are employed. The students are men of exceptional ambition and discrimination, who are serious in their purpose to secure the best possible training and to develop their capacities to a high degree.

An extension of the work of Northeastern College into six of the leading New England cities offers opportunity to practically every man in these New England cities for improving himself during his evening time.

Twenty-five years is a short time when one looks back on it, but in view of the development of the college which has taken place in that time, it is interesting to throw one's thoughts forward and imagine what will take place during the next twenty-five years.

Northeastern College has on its Board of Trustees, its Regional Committee, its Directors and Faculty many of New England's leading business, professional, and industrial men. On pages 4, 34, 35, 36, 37, and 38, a list of these men is given.

The School of Commerce and Finance

THIS School presents in a very practical manner those subjects which are vital to the advancement of the well rounded modern business man.

Departments of Accounting, Business Law, Finance and Business Administration make it possible to develop strongly upon one line of endeavor, such as Public Accountancy, or to arrange for a general business course, which will be of particular value in preparation for other lines of work.

While the School welcomes graduates of high schools, who are desirous of obtaining business training, and gives them the same opportunities that are accorded to older men, it is significant that men of maturity, determination, and ambition are attracted to the School because of the practical nature of the subjects taught and because they realize the necessity of intensified technical training in modern business methods.

The students come from every line of business,—bookkeepers, office managers, bank clerks, accountants, commercial teachers, lawyers, salesmen, production managers, and clerks all being represented in the student body.

From its start in September, 1911, the Boston school has shown a rapid growth. During the first year, 153 students enrolled; in the third year, this increased to 548; in the next year, 761, and at the present time is well up toward 900.

Divisions of the school are now located in Worcester, Springfield, Providence, Bridgeport, New Haven and a branch is located at Lynn. The combined enrollment of these divisions is 513, making a grand total of over 1400.

The increased enrollment in every place indicates that the demand for business training is widespread. *It is a significant fact that more students from the School of Commerce and Finance have passed the Massachusetts examinations for Certified Public Accountants than from all the other accounting schools in the state combined.*

What the School Can Do for You

While any of us may be doing *fairly well* on our present "job", the fact remains that the men who go ahead are those who have been making a careful study of everything related to their present position—and at the same time preparing to fill a larger one.

The demands of modern business are such that a man must be trained to do some one thing particularly well. A man who can do some one thing better than the majority of men will always command respect, and his place in the business community is assured, while the man who goes into business with a general rather than a specific education will find it necessary to spend years in making a place for himself.

In order to obtain this specialized training, however, a man must have a broad foundation. No matter whether the selling, buying, advertising, production, or managerial positions are concerned, every man nowadays needs a general knowledge of accounting and of the manner in which business is conducted. For this reason, a standard course is given for all students until the Junior year, as shown on the schedule on page 39.

The Opportunities Presented

Combined Accountancy and Business Administration Courses

Freshman and Sophomore Years

The course in Accountancy is intended to provide the best possible preparation for the examinations for Certified Public Accountant given by the various states, and for the examinations for admission to the American Institute of Accountants. This, however, is not the only object of the course. It provides a broad and complete preparation for the practice of accounting or business administration. To accomplish this object, a good foundation in the principles of accounting is given during the first two years on the theory that every man should know enough about accountancy to understand his own business.

The work of the first year gives the student a thorough knowledge of the principles of modern double entry bookkeeping. The course starts at the very beginning and a considerable amount of time is spent at the outset with the simplest details of bookkeeping and accounting, in order that the students may be fully prepared to keep up with the more rapid progress of the accounting in the latter half of the first year and in the succeeding three years.

Instruction by means of lectures with comparatively little practice work will not develop a finished accountant or administrator. A broad and elastic knowledge can be obtained only through lectures supplemented by a large amount of properly graded problem work. For this reason, the school has adopted a policy of requiring an average of two hours outside study for each hour of class work. This means that a student completing the required seven hundred sixty-eight hours of class work, for the degree will have performed approximately twice that amount of practice work outside of class. This furnishes the most practical method of demonstrating the actual working of accountancy principles in business.

The term work in connection with accounting subjects consists of sets of books to be written up, a great variety of exercises in connection with financial statements, adjusting entries, and closing entries. Accounting systems and sets of instructions for their conduct are required to be prepared, sets of books are audited and audit reports and working papers are required to be submitted. A great variety of C. P. A. questions in Theory of Accounts, Practical Accounting, and Auditing are required to be answered. Problems are given dealing with the accounts of public utilities, municipalities, executors and trustees, manufacturing concerns, etc.

The value of this practice work in giving the student the ability to apply the knowledge gained at the School is illustrated by the constant call for men from the School among business houses.

Selection of Specialized Courses

JUNIOR AND SENIOR YEARS

At the beginning of the Junior year, the student has obtained a sufficient foundation to enable him to decide whether to pursue the specialized accountancy work with a view to practicing as a public or private accountant, or whether he will take the broader business administration subjects with a view to becoming an executive in business.

Business Administration Courses

JUNIOR AND SENIOR YEARS

Those who choose the course in Business Administration are required to select certain courses in Economics and Commercial Law in order to continue the broad foundation of the work which has been accomplished during the first two years. They are permitted, however to elect certain courses, such as Salesmanship, Advertising, Credits, Production Methods, Office Organization, Industrial Relations, etc., in order to obtain training along the broader phases of business organization and management. A more complete list of the elective subjects will be found on page 39.

Professional Accounting Courses

JUNIOR AND SENIOR YEARS

Those who take the advanced accounting courses are trained particularly for public accounting work, which, of course, embraces the necessary training for private accountants. The course is distinctly professional, having for its aim the best possible preparation for the accounting profession.

Complex business conditions have broadened the duties of an accountant. He is called upon to make examinations of the books and accounts of all kinds of businesses, and to report upon the results of his examination. He must be able to design and install accounting systems which will reduce the possibility of irregularities to a minimum. He is frequently called upon to investigate the affairs of business concerns for the benefit of prospective investors, creditors, and bankers. The present intricacies of the state and Federal tax laws require the services of trained accountants to a greater extent than ever before.

The successful public accountant must be a man of the highest integrity and moral courage. His duties require not only a high degree of technical skill, but he should also be familiar with the various phases of business organization. He should possess a knowledge of corporation finance, money and banking, business administration, and business law. The course in Professional Accounting is designed to meet these requirements.

While there are many opportunities in public accounting for properly trained men, the field of private accounting offers opportunities which are perhaps even more attractive. The office manager and cost accountant are just beginning to receive the recognition which the importance of their work justifies. Because of the keen competition and complex conditions existing in modern business, business men now realize that it is of the first importance that their office and factory records should be designed and kept so as to give accurate and detailed information concerning the operations of the various departments of the business. A modern accounting system serves not only as a record of transactions, but, if properly installed and operated, it provides a reliable and flexible check upon the operations of the business by reflecting both carelessness and dishonesty on the part of employees, while on the other hand it also records increased efficiency, so that it serves as the best possible index or guide for the business man in observing the operations of his business and in establishing the highest possible standards.

Requirements for Admission

For regular admission as candidate for a degree, fifteen academic units are required. Credit for these units may be secured by presentation of a certificate or a diploma from an approved preparatory school, or by examinations to be given by Northeastern Preparatory School to applicants. Students who have not credit from high school are thus given an opportunity of removing academic conditions by taking proper examination before the opening of the school.

Of the fifteen units required, three must be in English, two and one-half in Mathematics, and one in Economics. The remaining eight and one-half units may include any subject ordinarily taught in a regular preparatory school.

Students may be admitted with thirteen entrance units providing the two remaining units are made up within two years, either by attending classes in an approved preparatory school or by taking proper examinations. Such students will not be granted the degree unless the conditions are removed before entering the Junior year.

Students not less than twenty years old who show fitness to pursue certain courses may be admitted to the regular classes without certificate or examination but will not be considered candidates for the degree until they have met with the regular requirements for admission.

In the cases of mature men who have had a long experience in business but who have not completed high school, a certain amount of academic credit may be granted to cover the broad knowledge and experience which such men offer in place of high school subjects. The School recognizes that its work is a scientific extension of the general training which such men have already received and further recognizes the fact that a man who has occupied a responsible business position for a number of years is mentally capable of undertaking the specialized work of the School. This paragraph is not applicable to any man under twenty-five years of age nor to a man who has had less than ten years of business experience, of which five years must have been in a position of responsibility.

Men who are granted admission as regular students are expected to take the full four year course requiring 768 class hours and approximately twice that amount of outside study. To complete the course in four years, they must attend on three nights each week, but where such attendance is impossible, arrangements may be made to attend two nights a week over a longer period of years.

Advance Credits Toward Degrees

Students who come to the school with unusual preparation in one or more subjects will be permitted to take advantage of this preparation and may obtain advance credits toward their degrees upon passing proper examinations.

These examinations will be in the subjects of Elementary Accounting, Contract and Agency Law, Business English and Elementary Economics. In each case, the examination given will be similar to that required of men who have completed the same subject in the regular courses of the school.

If a student should pass examinations in all of the above subjects it would be possible for him to complete the regular work of the school in three years. He will, of course, be excused from attending classes in any of the subjects in which he passes examinations. Examinations in Accounting will take place in the Y. M. C. A. Building at 7.30 o'clock on the evenings of September 13, 15, and 22—examinations in Business English at the same place on September 14 and 23—examinations in Contract and Agency Law or Economics will be held on September 16 and 21.

Requirements for Graduation

CANDIDATES FOR DEGREE OF B.C.S.

The degree of Bachelor of Commercial Science will be conferred upon students who have completed all the term work and examinations prescribed during the regular courses with a grade of 70% (C) or higher, subject to the special rules regarding attendance.

CANDIDATES FOR THE DEGREE OF M.C.S.

Candidates for the degree of Master of Commercial Science must hold the degree of Bachelor of Commercial Science or its equivalent from an approved school of commerce and finance. Candidates for this degree are required to take a two-year graduate course subject to the approval of the faculty, and to pass examinations upon the subjects pursued. They are also required to prepare an elaborate thesis on a subject approved by the faculty.

CREDIT FOR COURSES COMPLETED IN OTHER INSTITUTIONS OF COLLEGE GRADE

Students who have completed courses in other institutions of college grade will be given credit for such courses upon presenting evidence that such courses were satisfactorily completed, that they are equivalent to the corresponding courses offered by the School of Commerce and Finance, and by passing the final examination in the course for which they desire credit. In case it is desired to take this examination specially, the regular fee for special examinations shall apply, but the applicant may, if he so desires, wait until the final examination is regularly given. In this case, however, credit for attendance in the course is given provided the student passes the final examination. If the student does not pass the final examination the course must be repeated.

HONORARY DISTINCTION

Two honorary distinctions are granted at the time of conferring the degree of Bachelor of Commercial Science:

With Highest Honor, to those who complete all term work and examinations throughout their course with at least 90% of A's and no marks below B.

With Honor, to those who complete all term work and examinations throughout their course with at least 50% of A's, and, of the balance, 75% of B's.

To entitle a student to honors, the work of the School must have been completed within the normal limits of the course.

As honorary distinction is based wholly upon the excellence of the work performed by the student in the school, students obtaining credit for courses taken elsewhere cannot count such credits toward honors. The courses credited will be eliminated in determining the granting of honors, and only the marks covering work done in the school will be considered.

Scholarships

The annual competitive examination for free scholarships in the school will be held at the Y. M. C. A. Building on September13, at 7.30 p. m. This examination is on the subject of Bookkeeping and Elementary Accounting and is open to members of the 1920 class of any recognized high school. All applicants who receive a passing mark will obtain credit for this course toward their degrees. In addition, the three men receiving the highest grades will be granted one year's free scholarship in the School. Specimen copies of past examinations, together with such information as may assist in preparing for this examination will be promptly forwarded upon request.

FOR EX-SERVICE MEN

A limited number of scholarships are available for ex-service men. In no case is a scholarship granted for the full value of the course as it is our candid belief that the man who puts something into his course gets more out of it than the man who receives everything for nothing. Application for these scholarships should be made at the School office.

Tuition Fees

The rates below apply to all students regardless of the date of their original enrollments in the School. Students previously enrolled are expected to pay the first two installments of tuition in accordance with the rates quoted. An adjustment will be made on the last payment for upper class students.

In all regular courses, tuition fees include membership for one year in the Young Men's Christian Association.

The tuition for regular students will be $100 per year, payable as follows: $35 on or before the first night on which classes meet, $35 on December 1st, $30 on February 1st.

In choosing special subjects or a special combination of subjects, if the subjects chosen fill three complete evenings per week for the full year, the maximum charge will be $100.

A registration fee of $10 is required upon making out the enrollment blanks. This fee will be credited toward the first payment of tuition but is not returnable under any circumstances in case a student later withdraws from the School.

Enrollment as a regular student is understood as indicating the intention of the student to complete at least a full year's work, and the plans of the School as to instructors, classrooms, etc., are based on this assumption.

In view of the unsettled conditions as to prices, the right is reserved to make such adjustments in tuition next year as business conditions may require.

Registration

Registration for enrollment in the Sophomore, Junior, and Senior classes should be made not later than September 17 in order that the School may have opportunity to issue the proper admission cards, without which no student will be admitted to classes. Students who delay enrollment until the opening night will miss one or more class sessions.

Registration for the Freshman class must be made not later than September 24. Students who register after this date will be obliged to take the chance of not being accommodated in the regular classes. They will be delayed from one to three days but they can attend classes.

Enrollment blanks may be obtained at any time by mail by addressing the School of Commerce and Finance in the Y. M. C. A. Building, and may be filled out and mailed to the School office. Enrollment blanks are not valid unless accompanied by a check for $10 as a registration fee.

Detailed Description of Subjects which are given in this School

Description of Subjects Given

IT is hardly possible to put before you in these short paragraphs the far reaching influence which these various courses may have upon your business career.

No one can determine off hand, from a mere summary of a subject, just what can be gained by studying it or where it will fit in with other subjects in the course.

There can be no question as to the advisability of prospective students coming into the School office and talking over the situation with the head of the School.

Accounting Department

With the development of business and commerce, a new profession has come into being—Accountancy. The accountant is indispensable in the business world; he is called upon to examine the condition of concerns to ascertain the weaknesses and to prescribe remedies. By cost accounting he checks waste, fixes prices scientifically, and changes expense into profit. By systems, he simplifies the work and increases the output. Frequently he has to probe into the management of a business house, appraise the assets and determine liabilities in the interests of capitalists or creditors or managers themselves, and advise them on the policy to pursue. Hence the accountant is a business engineer, who charts the shoals and sounds the depths, and prevents the commercial craft from foundering on the rocks or sinking in the storms.

The opportunities in public practice for the man who knows Accountancy are numerous and attractive. Mr. Elijah W. Sells, one of the most noted accountants of the world, said that not ten per cent of the accounting work that should be done is now being done. Accountants are in demand by municipalities, corporations, stores, and factories.

Accounting 101 (Freshman)

This subject is required throughout the Freshman year of the four-year course. It is designed to cover the fundamental principles of accounting theory and practice. Students are given practice work illustrating the simple methods of double entry bookkeeping. Carefully prepared sets which illustrate accounting principles in conformity with modern practice are required to be worked up. Frequent lectures are given bearing upon principles, classification of accounts, bookkeeping technique, and the form and arrangement of financial statements. A feature of the course is the large amount of practice in the preparation of financial statements, adjustments, and closing entries. Upon the completion of this subject, students will have acquired a practical knowledge of double entry bookkeeping.

Accounting 201 (Sophomore)

This course is a logical continuation of Accounting I, andis required throughout the Sophomore year. The work of the course is best divided into two parts as follows:

(*a*) *Theory and Practice of Advanced Bookkeeping*

This course starts with a consideration of advanced bookkeeping as applied to mercantile and manufacturing businesses. Students are required to write up a carefully prepared set of books illustrating the accounting methods of manufacturing concerns and corporations, with special emphasis on the manufacturing accounts. Practice work is given in Adjusting and Closing Entries, Balance Sheet, Profit and Loss Statements, special lectures and exercises upon advanced theory of accounts, and on accounting principles and procedure.

(*b Financial Statements and Practical Problems*

Considerable time is devoted to lectures and practice work dealing with the form and arrangement of financial statements applicable to different businesses and to the solution of accounting problems of all kinds in Single Entry, Partnerships, and Corporations. On a number of evenings allotted to this work the students work out an assigned problem within a given time. This practice on problems which they have had no opportunity to study in advance develops in the student confidence and self-reliance and the abiltiy to think quickly and accurately, and at the same time to present the solution in a neat and finished form.

Careful attention is given to the examination of all exercises and problems passed in; all work is carefully examined, corrections noted, graded and returned.

Accounting 301 (Advanced Accounting Problems)

Optional during the Junior year.

The work of this course consists of lectures, demonstrations, and discussions, and of problems assigned regularly for solution outside of class. The first part of the course will be devoted to a study of state and Federal Tax regulations. Practice will be given in making out the various returns required. Problems throughout the course are carefully chosen and cover a wide range of topics, such as Partnership Settlements and Adjustments, Advanced Corporation Exercises, Bond Issues and Sinking Funds, Consolidations, Holding Companies, Receiverships, Accounting for Trustees and Executors, Branch Stores, Consignments, Special Investigations, and numerous problems of a miscellaneous character. Most of the problems are selected from recent C. P. A. examinations held in the various states. The problem work is supported and supplemented by lectures and demonstrations on the principles involved.

Tests are given from time to time, which are similar in their scope and requirements to the examinations set by the various state boards and by the American Institute of Accountants. This practice develops the qualities of initiative, accuracy, and analytical power, and the ability to accomplish a prescribed amount of work in a given time.

Accounting 302 (System Building)

Required throughout the Junior year. The purpose of this course is to teach the fundamental principles of System Building as applied to all classes of business. The development of the subject proceeds by lectures, home study and practice work, and the demonstration of systems now in practical operation in various branches of business. The data for all lectures is taken from current commercial practice, and by means of the lectures a judicious combination of theory and practice is effected. The preliminary work includes a discussion of loose-leaf and bound record books, of the various styles and types of binders and bindings, etc., illustrating their good and bad features. This is followed by lectures on the different kinds, weights, and grades of commercial papers.

The students are then given practice in ruling and lettering various standard accounting forms. A series of lectures is given on the functions of the various books of entry. Then follows a discussion and demonstration of several complete accounting systems which are in actual use and which have been carefully selected so as to include a great variety of forms and to illustrate the accounting methods of a wide variety of businesses. This part of the work includes some of the following systems:

Retail Business by Departments
Wholesale Business
A large automobile sales and service agency
Manufacturing
A construction company
A club
Associations and estates

The materials used in these systems are supplied to the students at actual cost.

Lectures on the methods of writing up a set of instructions are given to the class, following which the students are required to write up a model set of instructions for one of the systems previously demonstrated. Toward the end of the course the student is required to design two accounting systems from data supplied by the instructors.

Accounting 403 (Business Mathematics)*

Required in the Senior year.

This is a course in certain processes required in modern business practice.

The subjects will be taken up somewhat in this order:

Simple Interest, Bank Discount, Equation of Payments and Accounts; a brief study of Logarithms; Compound Interest and Present Worth; Annuities Certain; Bonds; Price to Yield a Given Rate When the Price is Given, Optional Redemption, Serial Bonds; Valuation of Assets, Perpetuities, Cost of Increasing the Life of an Asset; Amortization; Sinking Funds; Depreciation, Wearing Value of an Asset, Composite Life of a Plant; Certain Problems in Life Insurance and Fire Insurance, There will be also a discussion of Graphs, the use of the Slide Rule, and Foreign Exchange.

***Not given 1920-21**

Throughout the course emphasis will be laid on processes rather than on theory. Abridged multiplication and division will be used rather than logarithms whenever possible. Tables will be used whenever possible, and the formulæ and rules given will be mostly simple.

Accounting 401 (Cost Accounting)

Optional in the Senior year.

This subject, which logically follows that of System Building, seeks to familiarize the student with the chief principles relating to the design of accounting systems for manufacturing concerns, special attention being paid to the finding of production costs. The various systems used for instruction purposes are drawn from current practice ,and the best textbooks available are used to supplement the work. The work of the course includes a careful study of the various methods of distributing "overhead" expenses, with special emphasis upon the "production factor" method.

During the progress of the work instruction is given on the fundamental principles of cost accounting and on various methods of recording and analyzing the different elements of manufacturing costs. Then follows a discussion and demonstration of several systems exemplifying the fundamental "production order" and "process" methods of cost finding. The systems illustrated are in actual use and are based on standard practice. Throughout the course the student's attention is called to the faults of over-systematization as well as to the true purpose of a properly designed cost accounting system. The course ends with a series of problems on the laying-out and installation of cost systems.

Accounting 402 (Auditing)

Optional in the Senior year of the Professional Accountancy course.

The lectures deal with auditing as applied to mercantile and manufacturing enterprises, financial institutions, clubs, public utilities, insurance companies, etc., and with special investigations, the preparation of audit programs and audit reports.

The quizzes are conducted by assigning a certain number of C. P. A. questions in auditing and then calling for answers to those questions at the next meeting of the class, at which time the instructor discusses the answers submitted. The members of the class are required to submit written answers to a certain number of audit questions each week, which are corrected, graded, and returned to them the following week. Additional C. P. A. questions are discussed informally in the class.

Department of Finance

This department provides the specialized training for those who seek employment in banking or investment houses or the financial departments of corporations or public utilities.

It also supplies the information required by investors, trustees and managers for the safe investment and care of their money and trust funds. Ignorance of finance is considered by Bradstreet's Review to be one of the most prolific causes of failure.

Finance 231 (Principles of Economics)

Required throughout the Sophomore year.

This subject consists of a study of the principles underlying modern business and industrial conditions. The work is carried on by means of lectures, textbooks assignments, and classroom discussions. The course, although concerned with the theory or rather the abiding principles of economic science, seeks constantly to bring out the application of these principles to ordinary business transactions of the present time. The lectures of the first half-year cover the various means of producing wealth and how it becomes distributed throughout the community. The lectures of the second half-year discuss special problems which bear upon present-day industry, such as money, credit, taxation, co-operation, the tariff and socialism.

Finance 331 (Banking)

Required in the first term of the Junior year.

This course in banking covers an outline of practical administration of a modern bank. It deals with such subjects as the organization and administration of a bank, and the functions and duties of the different officers, the clearing house, federal reserve bank and its operation.

Finance 332 (Public Utilities)

Required in the first term of the Junior year.

The course deals with the operation, the financial organization, and public policy of electric, gas, and water utilities. The following are some of the topics discussed: the promotion, financial management, extension, and reorganization of operating companies; the holding company; rate-making in steam and hydro-electric plants; rate-making for gas and water works; accounting for depreciation; the study of different systems of accounting; the consolidation of companies; history of legislation and important cases covering rates ,and the jurisdiction of state commissions.

Finance 333 (Corporation Finance)

Required in the second term of the Junior year.

This course covers the principles involved in the financial acts of a modern business corporation. The work will be carried on by means of lectures and assigned reading. The course begins with an historical survey of the modern corporation, especially the tendencies which have created it. Then will follow detailed discussions of the problems confronting present-day corporations, including all the steps of promotion, expansion and reorganization. The course emphasizes the economic and business aspects rather than the legal aspects of corporations.

Department of Business Law

No course touching commercial life would be complete without a basic training in the principles of business law. Every business transaction is based on some point of law, and without a knowledge of these essential points no accountant or business administrator would be competent to handle responsible duties.

Law 121 (Contracts)

This course deals with the subjects of consideration, offer and acceptance, parties, legal and illegal contracts, forms of contracts, interpretation of contracts, assignment of contracts, and the methods of discharging contracts.

These subjects will be dealt with from the business man's point of view rather than that of the lawyer, and the course should furnish a sufficient grounding to cover any ordinary set of facts arising in the usual course of business.

Agency

It is not often realized how large a proportion of business is done by agents. From the smallest messenger boy to the president of the largest manufacturing concern, the relation of principal and agent is constantly in evidence. It is therefore important to know who may be an agent, how he is appointed, what his authority is, his relations with his principal and with third parties, the relations between the principal and third parties, and how an agency may be terminated.

This course is designed to give this information briefly and yet in such a manner that it may be applied readily when occasion requires.

Law 221 (Partnership)

Covers the various kinds of partnership agreements, the rights and liabilities of each partner, the personal liability of each partner to third parties, the methods of dissolving partnerships, etc.

Corporations

The formation of a corporation, its by-laws and officers; the powers and liabilities of directors; transfers of stock, rights of minority stockholders, corporation reports and rates, etc.

Law 321 (Sales of Personal Property)

Scarcely a day passes without bringing up a case of sales of personal property. Often a large amount of money hangs on the determination of the legal question of passing title. Is delivery essential to pass title? Must payment be made to gain title? What is a contract of sale? What is a warranty? What can the seller do to protect his rights? What are the rights of the buyer?

All these questions, and more, are pertinent to the subject of sales, and the consideration of them will constitute the subject-matter of the course.

Bills and Notes (Negotiable Instruments Act)

Nearly every business transaction which does not involve the transfer of actual cash is affected in some way by the Negotiable Instruments Act, now in force in more than three-fourths of the states.

It is therefore important to know something about the form of a negotiable instrument, what requirements must be met to make it negotiable, how it may be signed, whether or not consideration is necessary, how it may be negotiated, what the rights of the holder are, what the liabilities of the parties are, how it must be presented for payment, how an instrument may be discharged, what a bill of exchange is, and how it differs from a check.

These are only indications of the points covered in the course, which will follow closely the construction of the Negotiable Instruments Act.

Suretyship

The contract of suretyship, the parties thereto, the necessary consideration, the delivery and acceptance of, rates of a surety, as to reimbursements, as to defences, etc.

Real Estate Law

Covers the handling of real estate, including the various kinds of titles and interests; the occupation of real estate, both as owner and as tenant; the making of leases; liabilities arising as a result of leases; the transferring of real estate, including various kinds of conveyances. Mortgages, their creation, assignment, foreclosure, discharge, etc.

Probate Law

The appointment of an administrator or executor, his liabilities and his rights, the right of inheritance, the duties of trustees, guardians, the making out of executors' and trustees' accounts, etc.

Bankruptcy

The Federal Bankruptcy Act, together with insolvency assignments, receiverships, etc.

Executive ability is scarce. If to general intelligence and personality there can be united a precise knowledge of those subjects needed in the conduct of a business concern, such as advertising, salesmanship, law, organization, credits, efficiency, etc., there is little doubt of a man's success. Many firms are on the lookout for such men.

The subjects in Business Administration and those in Professional Accountancy are the same for the Freshman and Sophomore years. At the beginning of the Junior year, electives listed as Junior or Senior subjects may be taken in place of the more technical accounting subjects.

Administration 141 (Business English)

Required in the first year of the regular courses.

Business English centers about the letter in its various forms, the letter of application, the letter of inquiry, the collection letter, the letter of adjustment, the sales letter, etc. To write effective business letters is primarily the aim of students of Business English. To accomplish this end, it is necessary to master the fundamental principles of composition, including vocabulary building, sentence and paragraph structure, punctuation, and spelling. The application of these principles to the English of business is the chief aim of the course.

Preliminary to the work in letter writing, practice will be given in Business Narration, Business Description, Business Exposition, and Business Argumentation, all of which types of composition enter greatly into the writing of successful business letters. Thereafter, intensive work will be given in the various types of letters, as well as in business reports. Greatest stress will be put upon the writing of sales letters.

Administration 341 (Salesmanship)

Salesmanship deals with the distribution of commodities to the final consumer and in the last few years has become a science requiring a definite training for success. The method used in this course is not only the giving of information through lectures, but the practical demonstration of how sales are made and the helpful criticism of the instructor on these demonstrations, which are made by the students. In addition, a textbook is furnished which gives a permanent reference library on the subject.

The method of combining theory and practice in this course has turned out men equipped with a thorough knowledge of the science of Salesmanship.

Administration 342 (Advertising)

The main difference between Advertising and Salesmanship is in the fact that the salesman usually meets his customer face to face, while the advertiser attempts to reach a large number of customers at once through written or printed material. The same elements of successful salesmanship are required plus a comprehensive knowledge of the methods to be used in giving publicity to any given commodity.

No attempt is made to give technical instruction in sizes and styles of type but the student is instructed by object lessons taken from current newspapers and periodicals, and as a final test is required to write up a comprehensive advertising campaign on given articles. Again we have a combination of theory and practice which turns out a finished advertising man.

Administration 441 (Office Organization)

Up to a few years ago, no attempt was made to standardize office method or to outline production methods for this kind of work, but during the last ten years, much attention has been paid to the subject and office work is now in many instances, laid out on a basis of efficiency and production, exactly as in producing goods in a factory. The methods of laying out an office organization in order to insure such results are of exceeding interest, and the lectures will be illustrated by charts and outlines which are in actual use at the present time. In addition to the lectures, a standard textbook will be used to furnish a permanent reference work for the students.

The profession of office management is a technical, highly paid one. For a man properly qualified, it offers a dignified, and responsible position and one which can be made one of the most important positions in an industry.

Administration 442 (Factory Organization)

This subject is immensely important at the present time in view of the continual call for greater production as the real cure for the present high prices. The course is not intended as a technical preparation for the factory production man, but is intended to give business men information concerning the workings of the modern factory and the problems which it encounters. For the accountant and the man who expects to fill a responsible position, such a knowledge is essential in order that he may have a proper foundation of broad knowledge on which to build his technical training.

Administration 443 (Credits and Collections)

This course is given along the outline laid down by the National Institute of Credit, a department of the National Association of Credit Men, and is taught by one of the foremost credit managers in the city.

The combination of expert material and expert teaching has resulted in the past in a most loyal and interested group of students, who have obtained definite information of value concerning credit work as a result of the training.

For the assistant credit man, for clerks in the credit or collection department, and for clerks who desire to enter the attractive profession of credit man, this course offers a practical and valuable method of obtaining the necessary material.

Administration 444 (Business Policies)

In the present industrial situation, a knowledge of the reasons why business interests pursue certain policies is not only interesting, but is really necessary in order to have a proper understanding of present day advance and a foundation for forecasting the future industrial development of our country. The rapid development in the last few years is an evidence of equally rapid changes during the next ten years, and the man who intends to progress must have in mind the reasons for the policies adopted by various representative lines of business. This course goes into detail on these policies and furnishes a foundation on which the progressive business man may build his future success.

Consideration is given to the effects of these policies on the different departments of the business, financial, production and accounting, on the local aspects of the businesses involved, and on the general public.

Administration 445 (Commercial Resources)

The papers are full of statements as to shortages in one or more lines of industrial productions and a comprehensive study of the resources of our country and the manner in which these resources are being handled at the present time is of particular importance. The entire future development of the country is dependent upon such resources and a knowledge of the subject offers valuable information for the prospective business man.

Administration 446 (Industrial Relations)

The progress of the labor movement from its inception has been accelerated greatly during the last few years and at the present time has resulted in the establishment of Industrial Relations Department in nearly every large business. It is the object of such departments to promote a better understanding between the company and its employees and to substitute a feeling of co-operation for the hostile spirit which has been evidenced between capital and labor.

The field of industrial relations is limitless. It includes the new so-called industrial democracy, employment management, psychology of business, and other subjects, each of which might be given a place of its own. It is intended to illustrate the methods used by leading industries through promoting industrial co-operation, which, in the minds of many people, is the only possible solution for the present labor situation.

Graduates of the School of Commerce and Finance

1914—Bachelor of Commercial Science

Daniel Asher, B.S., LL.B., Worcester
Thomas H. Burton, Winchester
Einar W. Christenson, C.P.A. (N. H.), Arlington
George S. Clarkson, C.P.A., (Mass.) Roxbury
William S. Cooper, Medford
Charles H. Cornell, C.P.A., (Mass.) Chelsea
William B. Cushing, Newton
Frederick W. Davison, Dorcehster
William L. Esterberg, C. P. A. (Mass.) Reading
Herbert Fallon, Dorchester
Harry H. Ferngold, East Boston
Herbert C. Fraser, Watertown
*Benjamin W. Fuller, Milton
Guy L. Harvey, Boston
Edgar P. Hawes, Roslindale
Raymond O. Keating, Woburn
Joseph A. Kuebler, Winthrop
William J. Lyons, Boston
William J. Magee, C.P.A., (Mass.) Boston
Harvard L. Mann, C.P.A. (Mass.) East Dedham
Harold J. Parsons, A.A., Worcester
Abijah Pearson, Roxbury
Isaac Rich, Roxbury
Charles F. Rittenhouse, C.P.A. (Mass. and N. H.) Jamaica Plain
William D. Smith, C.P.A., (Mass.) Dorchester
Walter F. Spinney, Allston
Maurice B. Spinoza, Roxbury
*Charles E. Stearns, C.P.A. (Mass.) Boston
Robert M. Taylor, West Somerville

1914—Master of Commercial Science

William S. Cooper, B.C.S., Medford
Charles H. Cornell, B.C.S., C.P.A., Chelsea
Herbert Fallon, B.C.S., Dorchester
Harry J. Ferngold, B.C.S., East Boston
Herbert C. Fraser, B.C.S., Watertown
Joseph A. Kuebler, B.C.S., Winthrop
William J. Lyons, B.C.S., Boston
Harvard L. Mann, B.C.S., C.P.A., East Dedham
Isaac Rich, B.C.S., Roxbury
William D. Smith, B.C.S., C.P.A., Dorchester
Maurice B. Spinoza, B.C.S., Roxbury
*Charles E. Stearns, B.C.S., C.P.A., Boston

1915—Bachelor of Commercial Science

Clarence E. Akerstrom, Medford
Benjamin Asher, Worcester
Robert Bruce, Roxbury
Philip F. Clapp, C.P.A., (Mass. and N. H.) Roxbury
Wilfred A. Clark, Medford
Casper Cohen, C.P.A., (Mass.) Chelsea
James B. Conway, Boston
Albert B. Curtis, Roxbury
Royal M. Cutler, C.P.A., (N. H.) Brockton
Willis H. Doe, Medford
Henry T. Dolan, Salem
Clifton W. Gregg, C.P.A., (N. H.) Beverly
Milburn D. Hill, Salem
Edward I. Hollander, Chestnut Hill
Robert H. Hunter, Dorchester
Edward S. Jenkins, Quincy
*Irving E. Jones, Brighton

*Deceased

James S. Kennedy, Everett
Martin C. Lee, South Boston
John C. Lord, Brookline
Myron F. Lord, Dorchester
Frank L. McCarthy, Arlington
Edwin E. McConnell, Hyde Park
Ralph C. MacDonald, Walpole
William A. Mansfield, Somerville
Lester C. Nutting, West Roxbury
Herbert L. Perry, West Somerville
James C. Purinton, Beverly
Edward C. Richardson, Waltham
James F. Rockett, Boston
William W. Sharpe, Forest Hills
Dale M. Spark, C.P.A., (Mass.) Dorchester
Ralph G. Stetson, Boston
Frank J. Sullivan, South Boston
Dana S. Sylvester, LL.B., Brookline
William E. Tierney, Lawrence
*Earle P. Tyler, Everett
Bruce R. Ware, C.P.A.(N. H.) Newton
Leo Wasserman, C.P.A. (Mass.) Roxbury
William H. Wheeler, Somerville
Carl W. Wright, C.P.A., (Mass.) Somerville

1916—Bachelor of Commercial Science

John B. Andrews, South Framingham
Herbert J. Ball, S.B., Lowell
Ronald B. Chipchase, Melrose
James P. Dillon, South Braintree
Loren N. Downs, Jr., S.B., Boston
Howard B. Hall, Boston
Harry I. Kessler, Roxbury
Charles Lee, East Boston
Joseph Levine, C.P.A., (Mass.) Dorchester
Claude R. Marvin, Boston
Frederick C. Rivinius, East Weymouth
Clarence E. Rosen, C.P.A. (Mass.) Jamaica Plain
Joseph S. Snow, Boston
Harry W. Thomas, Melrose
Alfred T. Timayenis, Revere
Franklyn P. Trube, Winthrop
William H. Walpole, Winthrop
Charles A. Wight, Jr., C.P.A., (Mass.) Cambridge

1916—Master of Commercial Science

Robert Bruce, B.C.S., Roxbury
Herbert L. Perry, B.C.S., West Somerville

1917—Bachelor of Commercial Science

Max Abelman, Roxbury
Walter G. Ambrose, Boston
Paul A. Anderson, Dorchester
Hyman Berkowitz, Roxbury
Alfred L. Billings, Arlington
Samuel Bischoff, Dorchester
Elbridge A. Bollong, C.P.A., (Mass. and N. H.) Allston
Charles I. Boynton, Boston
Benjamin G. Brooker, Dorchester
George G. Caldwell, Mattapan
Richard B. Capstick, Auburndale
Benjamin A. Carlson, Allston
Henry I. F. Carney, Somerville
Carlton N. Chandler, Marion, Ohio
William F. Chaplin, Cambridge
Ira M. Conant, A.B., C.P.A., (Mass and N.H.) Boston
Michael Edelstein, Boston
John C. Farrington, C.P.A. (N.H.) Lowell
Paul Fishman, Roxbury.
James J. Fox, C.P.A. (Mass. and N.H.) Boston.
Charles Gale, C.P.A., (Mass. and N.H.) Dorchester
Jack M. Gordon, Malden
James A. Grant, Lowell
Clifford E. Guild, Mansfield
Fred D. Harrington, C.P.A. (Mass.) Somerville

*Deceased

Effinger E. Hartline, Washington, D. C.
Simon Helman, Dorchester
Walter G. Hill, A.B., Jamaica Plain
George L. Hoffacker, Boston
Arthur H. Holmberg, C.P.A. (N.H.) Cambridge
James T. Johnson, Jr., C.P.A, (Mass.) Waltham
Leonard L. Kabler, Roxbury
Reuben Kaplan, Boston
Max Katz, Dorchester
George A. Lange, Jamaica Plain
*Charles C. MacLean, Cambridge
Elmer A. Merriam, LL.B., West Roxbury
Robert Pillow, Allston
*Abraham N. Radler, C.P.A. (.N H.) Dorchester
John A. Ryan, C.P.A. (Mass.) Lynn
James A. Saunders, C.P.A. (Mass.) Brighton
Louis I. Shulinski, Worcester
Nathaniel F. Silsbee, C.P.A. (N.H.) Dorchester
Stanton S. Skolfield, Boston
Samuel J. Stone, C.P.A.(N. H.) Roxbury
Francis B. Southwick, C.P.A., (N. H.) Waban
Warren E. Wescott, Melrose
Herbert F. Whitmore, Arlington Heights

1918—Bachelor of Commercial Science

Reginald Amback, C.P.A. (N.H.) Roxbury
Abraham Annapolsky, Winthrop
Walter H. Apperson, Meford
Ralph S. Bell, South Boston
Louis J. Birger, Dorchester
Ernest H. Brooke, Dedham
Arthur M. Brown, Watertown
Arnold D. Brundage, Salem
Clarence G. Chapin, Cambridge
Ernest R. Ciriack, Jamaica Plain
Joseph B. Cohen, C.P.A., (Mass. and N. H.) Worcester
Dennis P. Crimmins, Worcester
Paul E. Crocker, Dorchester
Percy E. Darling, Melrose
George A. Dempsey, Salem
Joseph A. Dudley, W. Somerville
Frank C. Fogg, Dorchester Ctr.
James O. Foss, Boston
Louis Friedman, Worcester
George Hansen, Dorchester
Maxwell Harris, Dorchester
*W. Clark Haywood, Salem
Irving E. Heymer, C.P.A. (N. H.) Auburndale
Joseph Hinchey, Melrose
Phillip Isenman, Malden
Percival Lantz, Dorchester
Albert A. Lappin, Dorchester
William W. Lee, Danvers
Edward J. McDevitt, Jr., C.P.A., (Mass.) Charlestown
Alfred B. Mahoney, Somerville
Walter J. Mahoney, Worcester
J. H. Melzard, Jr., Hyde Park
Edward F. Messinger, Roxbury
Frederic Mitchell, Malden
Arthur R. Morse, Andover
Leroy C. Murch, Beverly
William A. Murphy, Jamaica Plain
Walter P. Nichols, Melrose
Thomas A. O'Connell, Boston
Henry Osberg, Malden
Arthur T. Partington, Winthrop
Oliver H. O. Pearce, Malden
Ralph W. Peters,C.P.A., (Mass.) Aburndale
Warren W. Petrie, Hyde Park
Henry A. Plett, South Boston
Leroy A. Prull, C.P.A., (N. H.) Dorchester
Neal D. Randall, Melrose Highlands
Norman B. Reed, Melrose
Joseph G. Riesman, Chelsea
Louis J. Rosenthal, Roxbury
George J. Saievetz, C.P.A, (N. H.) Chelsea
Royal Shawcross, Boston
William J. Shield, Medford
Herbert W. Simmons, C.P.A., (Mass.) Lynn
Frank Solomon, C.P.A. (Mass. and N. H.) Roxbury
Harry F. Standley, Beverly
Nathan Stern, Boston
J. H. Stewart, East Boston
Francis F. Vogel, Roxbury
George F. Wagner, Lowell
Raymond D. Willard, C.P.A., (Mass.) Concord
Frank H. Wrigley, Quincy

1918—Master of Commercial Science

Harry I. Kessler, B.C.S., Dorchester

---

*Deceased

1919—Bachelor of Commercial Science

John M. Ayer, Brighton
Harry D. Barr, Medway
Karl H. Becker, C.P.A. (N. H.) Roslindale
Paul G. H. Brueckner, Jamaica Plain
Dennis F. Casey, Dorchester
Ernest T. Craig, Brookline
Jeremiah P. Cronin, Beverly
Lawrence Davis, Roslindale
Kenneth T. Dillon, Mattapan
Arthur C. Evert, Chelsea
Robert A. Fopiano, Everett
Rudolph Gfroerer, Dorchester
Maurice Goldberg, Malden
Barry J. Goldings, Roxbury
Austin D. Hall, Cambridge
William E. Hayes, C.P.A., (Mass.) Lynn
Otis E. Johnson, Malden
George L. Kilgore, Waltham
Samuel A. Kline, Dorchester
Benjamin Koslofsky, Dorchester
Hyman Landsman, Chelsea
John M. Lund, Roxbury
John F. McDevitt, Charlestown
Thomas A. Milne, Arlington
Edward P. Mock, Woburn
Daniel J. O'Brien, Boston
Harold F. Phillips, Dorchester
John F. Riordan, Roslindale
Mitchell Rosenfield, Revere
Morris Rosenthal, Roxbury
Nathan Rotfort, Chelsea
Frank P. Schaffer, Malden
Harold O. Smith, Lynn
Arthur L. Tobin, Salem
John W. Totten, Norwood
Ralph W. Watson, C.P.A., (Mass. and N. H.) West Medford
John E. Willis, North Andover

1920—Bachelor of Commercial Science

Edwin S. Anderson, Medford
Martin J. Anderson, Gloucester
Walter G. Arnold, Arlington
Frederick M. Bassett, Boston
Henry A. Beyer, Jamaica Plain
John T. Bogrette, Medford
George J. Breen, Norwood
Curtland C. Brown, Wenham
John J. Bulger, Dorchester
Walter F. Burke, South Boston
Harry Chalfin, Canton
John H. Cleary, Jr., Charlestown
Samuel Cohen, Boston
James F. Cullen, Boston
Tracy A. Dibble, Lynn
George N. Dill, Belmont
Arthur J. Dolan, Roxbury
Jesse F. Dolloff, Winthrop
John J. Donahue, Charlestown
Robert W. F. Eagle, North Andover
Anton Eck, Dorchester
Israel W. Ephross, Boston
Louis A. Estrach, Chelsea
Frank J. Farrey, North Woburn
Francis P. Fleming, Waltham
Lawrence Eddy Foster, Beverly
Max Gidez, Boston
Murdoch J. Gillis, Jr., Roslindale
John Goldberg, Roxbury
George Goldstein, Malden
Sidney Guttentag, Dorchester
Francis J. Harrigan, Dorchester
John W. Higgins, Jr., Rockland
Richard F. Hingston, Lynn
Laurence M. Johnson, Lynn
Philip W. Johnson, C.P.A., (Mass.) Medford Hillside
Clifford L. Jordan, Dorchester
Edward A. Kane, Malden
Clarence V. Kenrick, Medford
Edwin H. King, Boston
Harris S. Knight, Salem
Louis Kremer, Haverhill
Wilfred B. Maynard, Lowell
George McEwan, Jr., Winthrop
Percy M. McIntosh, Lowell
Nathan Milgroom, Roxbury
Frederick A. Mock, Jamaica Plain
George E. Murphy, Lowell
Herbert J. Nolan, Dorchester

Herman Olson, Dorchester
Robinson S. Parlin, Watertown
Saul O. Perlmutter, East Boston
Benjamin J. Perlstein, Everett
Harry W. Prout, Brighton
Alonzo Putnam, Jr., Lowell
Samuel Rappeport, Boston
William F. Richstein, Natick
Israel Scolnick, Dorchester
Samuel M. Seif, Dorchester
Arthur F. Smith, Lowell
Sprague R. Whitney, Winthrop
Edward V. Wright, North Attleboro
Kostas C. Yerontitis, Boston

Worcester Division

Ernest P. Cotton, Worcester
Samuel Z. Cramer, Worcester
Harry W. Laduke, Worcester
Bartholomew J. Murphy, Worcester
Charles W. Parks, Worcester
A. Oscar Price, Worcester
Lester K. Sweeny, Worcester
Charles R. White, Worcester

Northeastern College

The Trustees

ARTHUR S. JOHNSON, *President*
ALBERT H. CURTIS, *First Vice-President*
SABIN P. SANGER, *Second Vice-President*
WILMAN E. ADAMS, *Third Vice-President*
LEWIS A. CROSSETT, *Treasurer*
GALEN D. LIGHT, *Secretary*

Wm. C. Chick
Russell S. Codman
H. Bradlee Fenno
Geo. C. Lee
Henry G. Lord
Francis P. Luce
Wm. E. Macurda
S. G. Wellington
W. B. Mossman
H. W. Newhall
Silas Pierce
Chas W. Perkins
Arthur Perry, Jr.
Thos. H. Russell
Frank P. Speare
J. Grafton Minot

Board of Governors

Albert H. Curtis, *Chairman*

William C. Chick
Arthur S. Johnson
Wm. E. Macurda
Wilman E. Adams
Frank P. Speare
S. G. Wellington

Northeastern College

Officers of the College

FRANK PALMER SPEARE, M.H., *President*
GALEN DAVID LIGHT, A.B., *Secretary-Bursar*
CARL DAVID SMITH, B.H., *Executive Secretary, Regional Committee*

The Executive Council

FRANK PALMER SPEARE, M.H.
President of the College

CARL STEPHENS ELL, A.B., M.S.
Dean of the Co-operative School of Engineering and the Evening School of Engineering

DANA SCOTT SYLVESTER, L.L.B., B.C.S.,
Dean of the School of Commerce and Finance

CARL DAVID SMITH, B.H.
Director of the School of Commerce and Finance and Executive Secretary, Regional Committee

HOWARD HENRY CHARLES BINGHAM, A.B.
Dean of the School of Liberal Arts

EVERETT A. CHURCHILL, A.B.
Dean of the School of Law

IRA ARTHUR FLINNER, Ph.B., A.M.
Headmaster of the Huntington School

THOMAS WEBB WATKINS, A.B.
Principal of Northeastern Preparatory School

GALEN DAVID LIGHT, A.B.
Secretary

Regional Committee

Northeastern College and Affiliated Schools

Chairman, Frank P. Speare, President Northeastern College
Vice-Chairman, Benjamin A. Franklin, President Springfield, Y. M. C. A.
Treasurer, Chandler M. Wood, President Metropolitan Trust Co., Boston
Secretary, Carl D. Smith, Boston

Boston

Arthur S. Johnson, President, Y. M. C. A.
Albert H. Curtis, General Manager N. E. Mutual Life Insurance.
Wilman E. Adams, General Secretary, Y. M. C. A.

Worcester

Louis H. Buckley, Assistant General Manager, U. S. Envelope Co.
Edward F. Miner, President Miner Building Co.
Robert L. Moore, General Secretary, Y. M. C. A.

Providence

Frederic H. Fuller, President, Y. M. C. A.
Clinton C. White, Secretary Puritan Life Insurance Co.
Dwight L. Rogers, General Secretary, Y. M. C. A.

Springfield

Benjamin A. Franklin, Vice-President Strathmore Paper Co.
C. V. Sawhill, Manager, King Richardson Company.
Blake A. Hoover, General Secretary, Y. M. C. A.

New Haven

W. E. Freeland, Sales Engineer, Winchester Repeating Arms Co.
Harold K. English, Director New Haven Y. M. C. A.
Judson J. McKim, General Secretary, Y. M. C. A.

Bridgeport

W. B. Spencer, President Bridgeport Elastic Fabric Co.
W. Seymour Lacy, General Secretary, Y. M. C. A.

Lynn

Herbert S. Smith, General Secretary, Y. M. C. A.

International Committee

William F. Hirsch, Executive Secretary, Educational Council.

State Committees

Edward W. Hearne, Secretary Massachusetts and Rhode Island.
F. D. Fagg, Secretary, Connecticut.

Executive Committee

Frank P. Speare, Chairman

Benjamin A. Franklin, Vice-Chairman
Carl D. Smith, Secretary
Chandler M. Wood, Treasurer
Albert H. Curtis, Boston
Louis H. Buckley, Worcester
Edward F. Miner, Worcester
Clinton C. White, Providence
W. E. Freeland, New Haven
W. B. Spencer, Bridgeport
William J. Raybold, Pittsfield

CLASS OF 1920, BOSTON

School of Commerce and Finance

Officers of Administration

FRANK PALMER SPEARE, M.H., *President*

DANA SCOTT SYLVESTER, L.L.B., B.C.S., *Dean*

CARL DAVID SMITH, B.H., *Director*

JOHN MAXWELL CRORY, M.E., (Sp.), *Assistant Director*

ALFRED JACKSON THOMPSON, *Supervisor of Freshman Accounting*

Staff of Instruction

Department of Accountancy

PHILIP F. CLAPP, B.C.S., C.P.A.
(Robert Douglas and Company, C.P.A.)
Professor of Accounting, System Building and Cost Accounting

ERNEST H. GRISWOLD, B.S., C.P.A.
(Griswold and Conant, C.P.A.)
Professor of Accounting and Auditing

GEORGE L. HOFFACKER, B.C.S.
Instructor in Accounting

RAYMOND D. WILLARD, B.C.S., C.P.A.
(Robert Douglas and Company, C.P.A.)
Instructor in System Building

ARTHUR F. O'MALLEY, A.M.
Instructor in Accounting

ROBERT BRUCE, M.C.S.
Instructor in Accounting

NATHANIEL F. SILSBEE, B.C.S.
(Haskins & Sells Co., C.P.A.)
Instructor in Accounting

EUGENE R. VINAL, A.M.
Instructor in Business Mathematics

WILLIAM S. KEMP
(Treasurer, The Holtzer-Cabot Electric Co.)
Lecturer in Cost Accounting

JOHN A. RYAN, B.C.S., C.P.A.
Lecturer on Tax Returns

IRVING L. SHAW
(State Income Tax Deputy)
Lecturer on Income Taxes

HAROLD A. LYON
(State Corporation Tax Deputy)
Lecturer on Corporation Taxes

CHARLES P. POTTER
(Ellis Adding Typwriter Co.)
Lecturer in System Building

Department of Economics

ARTHUR S. DEWING, PH.D.
Professor of Economics

Department of Business English

ORREN H. SMITH
Professor of Business English

Department of Business Law

DANA S. SYLVESTER, L.L.B., B.C.S.
(Frederick Bond Cherrington, C. P. A., and Associates)
Professor of Business Law

Department of Business Administration

JOHN K. ALLEN
(Of Lee, Higginson Company)
Instructor in Publicity

MATTHEW POROSKY
(Chairman, Factory Management Committee, The Holtzer-Cabot Electric Co.)
Instructor in Factory Organization

MERRILL W. OSGOOD
(Head of Planning Dept., Jordan Marsh Co.)
Instructor in Office Management

GARDINER E. THORPE
(Superintendent of the Bradstreet Company)
Lecturer in Commercial Credits

HAROLD A. THURLOW
(Thurlow Advertising Agency)
Instructor in Salesmanship

J. VICTOR DAY
(Asst. Treasurer, Smith-Patterson Co.)
Instructor in Credits and Collections

Schedule of Courses and Rates

Year	Course	Meets 7.15 to 9.15 Mon.	Tues.	Wed.	Thurs.	Fri.	Starts	Ends	Special Students
Senior	Cost Accounting 401	.	x	.	.	.	Sept. 21	May 3	$43.00
	Auditing 402	.	.	.	.	x	Sept. 24	May 6	43.00
	Business Mathematics 403	.	Owing to change of program course is not given 1920-21.						
	Law 321	.	.	x	.	.	Jan. 26	May 11	23.00
	Office Organization 441	.	.	x	.	.	Sept. 22	Nov. 10	12.00
	Factory Organization 442	.	.	x	.	.	Nov. 17	Jan. 19	12.00
	Credits and Collections 443	.	.	.	x	.	Sept. 23	Jan. 20	20.00
	Business Policies 444	.	x	.	.	.	Sept. 21	Jan. 18	20.00
	Commercial Resources 445	.	.	.	x	.	Jan. 27	May 5	20.00
	Industrial Relations 446	.	x	.	.	.	Jan. 25	May 3	20.00
Junior	Advanced Accounting Problems 301	x	.	.	.	.	Sept. 20	May 9	45.00
	System Building 302	.	.	.	.	x	Sept. 24	May 13	45.00
	Law 321	.	.	x	.	.	Jan. 26	May 11	23.00
	Money and Banking 331	.	.	x	.	.	Sept. 22	Oct. 13	8.50
	Public Utilities 332	.	.	x	.	.	Oct. 20	Nov. 10	8.50
	Corporation Finance 333	.	.	x	.	.	Nov. 17	Jan 19	16.00
	Salesmanship 341-A	.	x	.	.	.	Sept. 21	Jan. 18	20.00
	Salesmanship 341-B	.	x	.	.	.	Jan. 25	May 10	20.00
	Advertising 342-A	.	.	.	x	.	Sept. 23	Jan. 20	20.00
	Advertising 342-B	.	.	.	x	.	Jan. 27	May 12	20.00
Sophomore	Accounting 201	x	.	.	.	x	Sept. 20	May 13	70.00
	Law 221	.	.	x	.	.	Sept. 22	Jan. 19	16.00
	Economics 231	.	.	x	.	.	Jan. 26	May 11	24.00
Freshman	Accounting 101	x	.	.	.	x	Sept. 27	May 20	70.00
	Law 121	.	.	.	x	.	Feb. 3	May 19	1600
	Business English 141	.	.	.	x	.	Sept. 29	Jan. 27	18.00

Add $2.00 to total cost of desired combination to cover cost of one year's membership in the Y. M. C. A.

THE DAVIS PRESS, WORCESTER

Index

Page
Calendar.................................... 3
Directors of School of Commerce and Finance.............. 4
Trustees and Governors of Northeastern College........... 34
Officers and Executive Council of Northeastern College...... 35
Officers and Faculty of the School...................... 37
What is Northeastern College.......................... 5
Growth of the School.................................. 6
What the School can do for you........................ 7

Opportunities Presented

Combined Accountancy and Business Administration Courses.................................. 8
Business Administration Courses...................... 9
Professional Accountancy Courses..................... 9
Credit Toward Degree................................ 12
Requirements for Admission.......................... 11

Requirements for Graduation

Degree of Bachelor of Commercial Science............. 13
Degree of Master of Commercial Science.............. 13
Credit for Work in other Colleges.................... 13
Honors.................................... 13
Scholarships.................................... 14
Tuition Fees.................................... 15
Registration.................................... 16
Schedule of Courses.................................... 39
Description of Subjects Given.......................... 19–28
Lists of Graduates.................................... 29–33
Regional Committee.................................... 36

Northeastern College

January 1920

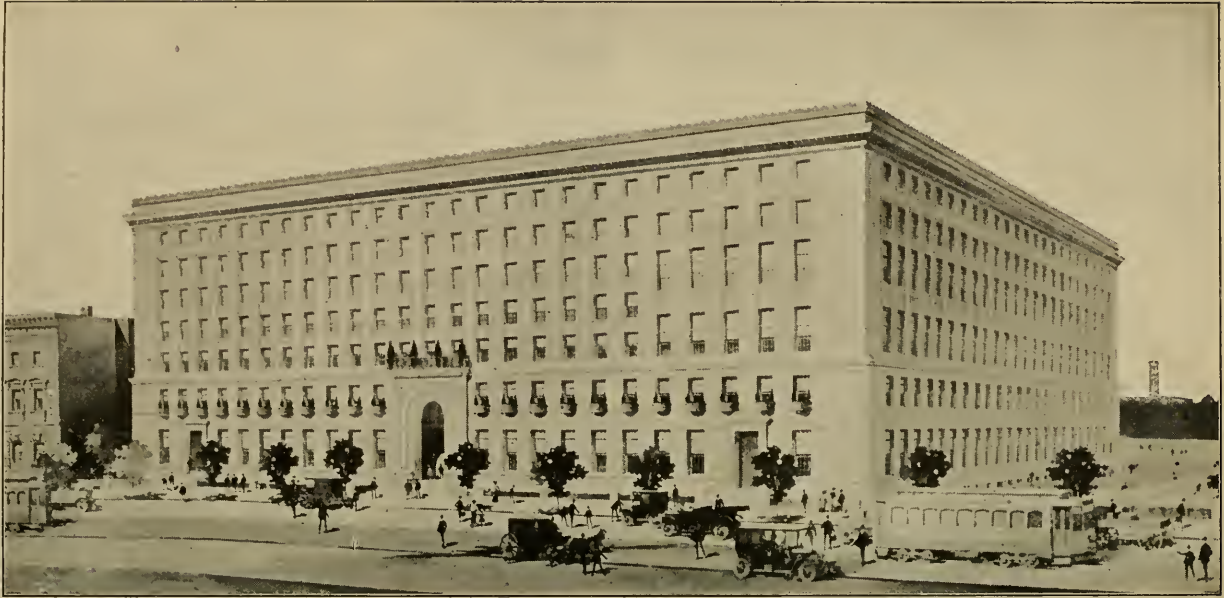
CATALOG

of the

Co-operative School of Engineering

1920-1921

PUBLISHED BY THE
TRUSTEES of NORTHEASTERN COLLEGE
Boston Young Men's Christian Association
Number 316 Huntington Avenue, Boston, Massachusetts



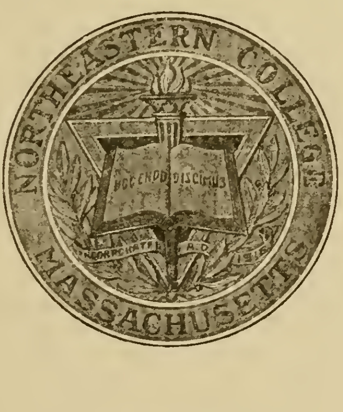
THE ASSOCIATION BUILDING
HOME OF NORTHEASTERN COLLEGE

Northeastern College

CATALOG

of the

Co-operative School of Engineering



1920-1921

316 Huntington Avenue
BOSTON, MASSACHUSETTS

YEARLY CALENDAR

1920

JANUARY

S	M	T	W	T	F	S
....	....	....	....	*1*	**2**	**3**
4	**5**	**6**	**7**	**8**	**9**	**10**
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	**26**	**27**	**28**	**29**	**30**	**31**
....	....	....	....	....	....	....

FEBRUARY

S	M	T	W	T	F	S
1	**2**	**3**	**4**	**5**	**6**	**7**
8	**9**	**10**	**11**	**12**	**13**	**14**
15	16	17	18	19	20	21
22	*23*	**24**	**25**	**26**	**27**	**28**
29	....	....	....	....	....	....
....	....	....	....	....	....	....

MARCH

S	M	T	W	T	F	S
....	**1**	**2**	**3**	**4**	**5**	**6**
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	**22**	**23**	**24**	**25**	**26**	**27**
28	**29**	**30**	**31**	....	....	....
....	....	....	....	....	....	....

APRIL

S	M	T	W	T	F	S
....	....	....	....	**1**	**2**	**3**
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	*19*	**20**	**21**	**22**	**23**	**24**
25	**26**	**27**	**28**	**29**	**30**	....
....	....	....	....	....	....	....

MAY

S	M	T	W	T	F	S
....	....	....	....	....	....	**1**
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	**17**	**18**	**19**	**20**	**21**	**22**
23	**24**	**25**	**26**	**27**	**28**	**29**
30	*31*	....	....	....	....	....

JUNE

S	M	T	W	T	F	S
....	....	1	2	3	4	5
6	7	8	9	10	11	12
13	**14**	**15**	**16**	*17*	**18**	**19**
20	**21**	**22**	**23**	**24**	**25**	**26**
27	28	29	30	....	....	....
....	....	....	....	....	....	....

JULY

S	M	T	W	T	F	S
....	....	....	....	1	2	*3*
4	*5*	6	7	8	9	*10*
11	12	13	14	15	16	*17*
18	*19*	*20*	*21*	*22*	*23*	*24*
25	*26*	*27*	*28*	*29*	*30*	*31*
....	....	....	....	....	....	....

AUGUST

S	M	T	W	T	F	S
1	*2*	*3*	*4*	*5*	*6*	*7*
8	*9*	*10*	*11*	*12*	*13*	*14*
15	*16*	*17*	*18*	*19*	*20*	*21*
22	**23**	**24**	**25**	**26**	**27**	*28*
29	**30**	**31**	....	....	....	....
....	....	....	....	....	....	....

SEPTEMBER

S	M	T	W	T	F	S
....	....	....	**1**	**2**	**3**	*4*
5	*6*	7	8	9	10	*11*
12	**13**	**14**	**15**	**16**	**17**	**18**
19	20	21	22	23	24	25
26	27	28	29	30	....	....
....	....	....	....	....	....	....

OCTOBER

S	M	T	W	T	F	S
....	....	....	....	....	1	2
3	4	5	6	7	8	9
10	**11**	*12*	**13**	**14**	**15**	**16**
17	**18**	**19**	**20**	**21**	**22**	**23**
24	**25**	**26**	**27**	**28**	**29**	**30**
31	....	....	....	....	....	....

NOVEMBER

S	M	T	W	T	F	S
....	**1**	**2**	**3**	**4**	**5**	**6**
7	**8**	**9**	**10**	**11**	**12**	**13**
14	**15**	**16**	**17**	**18**	**19**	**20**
21	22	23	24	*25*	26	27
28	29	30	....	....	....	....
....	....	....	....	....	....	....

DECEMBER

S	M	T	W	T	F	S
....	....	....	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	*25*
26	**27**	**28**	**29**	**30**	**31**	....
....	....	....	....	....	....	....

1921

JANUARY

S	M	T	W	T	F	S
. .	. .	. .	. .	. .	. .	*1*
2	**3**	**4**	**5**	**6**	**7**	**8**
9	**10**	**11**	**12**	**13**	**14**	**15**
16	**17**	**18**	**19**	**20**	**21**	**22**
23	**24**	**25**	**26**	**27**	**28**	**29**
30	**31**	. .	. .	. .	. .	. .

FEBRUARY

S	M	T	W	T	F	S
. .	. .	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	*22*	23	24	25	26
27	28	. .	. .	. .	. .	. .
. .	. .	. .	. .	. .	. .	. .

MARCH

S	M	T	W	T	F	S
. .	. .	1	2	3	4	5
6	**7**	**8**	**9**	**10**	**11**	**12**
13	**14**	**15**	**16**	**17**	**18**	**19**
20	**21**	**22**	**23**	**24**	**25**	**26**
27	**28**	**29**	**30**	**31**	. .	. .
. .	. .	. .	. .	. .	. .	. .

APRIL

S	M	T	W	T	F	S
. .	. .	. .	. .	. .	**1**	**2**
3	**4**	**5**	**6**	**7**	**8**	**9**
10	11	12	13	14	15	16
17	18	*19*	20	21	22	23
24	25	26	27	28	29	30
. .	. .	. .	. .	. .	. .	. .

MAY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	**16**	**17**	**18**	**19**	**20**	**21**
22	**23**	**24**	**25**	**26**	**27**	**28**
29	*30*	**31**	. .	. .	. .	. .
. .	. .	. .	. .	. .	. .	. .

JUNE

S	M	T	W	T	F	S
. .	. .	. .	**1**	**2**	**3**	**4**
5	**6**	**7**	**8**	**9**	**10**	**11**
17	**13**	**14**	**15**	**16**	*17*	**18**
24	20	21	22	23	24	*25*
31	27	28	29	30	. .	. .
. .	. .	. .	. .	. .	. .	. .

JULY

S	M	T	W	T	F	S
. .	. .	. .	. .	. .	1	*2*
3	*4*	5	6	7	8	*7*
10	*11*	*12*	*13*	*14*	*15*	*16*
17	*18*	*19*	*20*	*21*	*22*	*23*
24	*25*	*26*	*27*	*28*	*29*	*30*
31	. .	. .	. .	. .	. .	. .

AUGUST

S	M	T	W	T	F	S
. .	*1*	*2*	*3*	*4*	*5*	*6*
7	*8*	*9*	*10*	*11*	*12*	*13*
14	*15*	*16*	*17*	*18*	*19*	*20*
21	**22**	**23**	**24**	**25**	**26**	*27*
28	**29**	**30**	**31**	. .	. .	. .
. .	. .	. .	. .	. .	. .	. .

SEPTEMBER

S	M	T	W	T	F	S
. .	. .	. .	. .	1	2	*3*
4	*5*	6	7	8	9	*10*
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	. .
. .	. .	. .	. .	. .	. .	. .

OCTOBER

S	M	T	W	T	F	S
. .	. .	. .	. .	. .	. .	1
2	3	4	5	6	7	8
9	10	11	*12*	13	14	15
16	**17**	**18**	**19**	**20**	**21**	**22**
23	**24**	**25**	**26**	**27**	**28**	**29**
30	**31**	. .	. .	. .	. .	. .

NOVEMBER

S	M	T	W	T	F	S
. .	. .	1	2	3	4	5
6	**7**	**8**	**9**	**10**	**11**	**12**
13	**14**	**15**	**16**	**17**	**18**	**19**
20	21	22	23	*24*	25	26
27	28	29	30	. .	. .	. .
. .	. .	. .	. .	. .	. .	. .

DECEMBER

S	M	T	W	T	F	S
. .	. .	. .	. .	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	*26*	**27**	**28**	**29**	**30**	**31**
. .	. .	. .	. .	. .	. .	. .

School Periods for Division A indicated by type thus: 1 2 3.
School Periods for Division B indicated by type thus: **1 2 3**.
Periods when School is not in session indicated by type thus: *1 2 3*.

Calendar 1920

January 1, Thursday
New Year's Day (School exercises omitted)

February 9, Monday
Second Term begins for Division A

February 23, Monday
Observance of Washington's Birthday (School exercises omitted)

February 24, Tuesday
Second Term begins for Division B

April 19, Monday
Patriot's Day (School exercises omitted)

May 31, Monday
Decoration Day Observance (School exercises omitted)

June 16
Annual Commencement

June 17, Thursday
Bunker Hill Day (School exercises omitted)

June 24, Thursday
First Entrance Examination

June 28, Monday
Three Weeks Summer Term for Division A commences

July 5, Monday
Observance of Independence Day (School exercises omitted)

August 23, Monday
Three Weeks Summer Term for Division B commences

September 6, Monday
Labor Day (School exercises omitted)

September 9, Thursday
Second Entrance Examination

September 13, Monday
Fall Term for Division A commences

October 12, Tuesday
Columbus Day (School exercises omitted)

October 18, Monday
Fall Term for Division B commences

November 25, Thursday
Thanksgiving Day (School exercises omitted)

December 25, Saturday
Christmas Day (School exercises omitted)

Calendar 1921

Note: Division B is at Engineering Practice while Division A is in school. The periods at school are shown by the different kinds of type on the Yearly Calendar on the previous page, and Division A is at Engineering Practice while Division B is at school, except as follows:

July 11-23	Division B at Engineering Practice
August 8-20	Division A at Engineering Practice

This makes every Engineering Practice period of exactly five weeks' duration throughout the year.

January 1, Saturday
New Year's Day (School exercises omitted)

January 31, Monday
Spring Term for Division A commences

February 22, Tuesday
Washington's Birthday (School exercises omitted)

March 7, Monday
Spring Term for Division B commences

April 19, Tuesday
Patriot's Day (School exercises omitted)

May 30, Monday
Decoration Day (School exercises omitted)

June 15, Wednesday
Annual Commencement

June 16, Thursday
First Entrance Examinations of Co-operative School of Engineering

June 17, Friday
Bunker Hill Day (School exercises omitted)

Calendar 1921

June 20, Monday

Three Weeks Summer Term for Division A commences

July 4, Monday

Independence Day (School exercises omitted)

August 22, Monday

Three Weeks Summer Term for Division B commences

September 5, Monday

Labor Day (School exercises omitted)

September 8, Thursday

Second Entrance Examinations of Co-operative School of Engineering

September 12, Monday

Fall Term for Division A commences

October 12, Wednesday

Columbus Day (School exercises omitted)

October 17, Monday

Fall Term for Division B commences

November 24, Thursday

Thanksgiving Day (School exercises omitted)

December 26, Monday

Observance of Christmas Day (School exercises omitted)

Northeastern College

The Trustees

PRESIDENT
ARTHUR STODDARD JOHNSON

1ST VICE-PRESIDENT
ALBERT HARMON CURTIS

2ND VICE-PRESIDENT
SABIN POND SANGER

3RD VICE-PRESIDENT
GEORGE WHITTEMORE MEHAFFEY

SECRETARY
FRANCIS POPE LUCE

TREASURER
LEWIS ABBOTT CROSSETT

WILLIAM CONVERSE CHICK
RUSSELL STURGIS CODMAN
HENRY BRADLEY FENNO
GEORGE CABOT LEE
HENRY GARDNER LORD
JOSEPH GRAFTON MINOT
WALTER BEMIS MOSSMAN
HENRY WHITING NEWHALL
SILAS PEIRCE
CHARLES WORTHEN PERKINS
THOMAS HASTING RUSSELL
SABIN POND SANGER
FRANK PALMER SPEARE
STANWOOD GRAY WELLINGTON

Board of Governors

CHAIRMAN
ALBERT HARMON CURTIS

WILLIAM CONVERSE CHICK
HENRY WHITING NEWHALL
STANWOOD GRAY WELLINGTON
ARTHUR STODDARD JOHNSON
GEORGE WHITTEMORE MEHAFFEY
FRANK PALMER SPEARE

Northeastern College

OFFICERS OF THE COLLEGE

FRANK PALMER SPEARE, M. H., *President*
GALEN DAVID LIGHT, A. B., *Secretary-Bursar*

THE EXECUTIVE COUNCIL

FRANK PALMER SPEARE, M. H.
President of the College

CARL STEPHENS ELL, A. B., M. S.
Dean of the Co-operative School of Engineering and the Evening School of Engineering

THOMAS EDWARD PENARD, S. B.
Associate Dean of the Evening School of Engineering

DANA SCOTT SYLVESTER, L. L. B., B. C. S.
Dean of the School of Commerce and Finance

PHILIP FRANCIS CLAPP, B. C. S.
Associate Dean of the School of Commerce and Finance

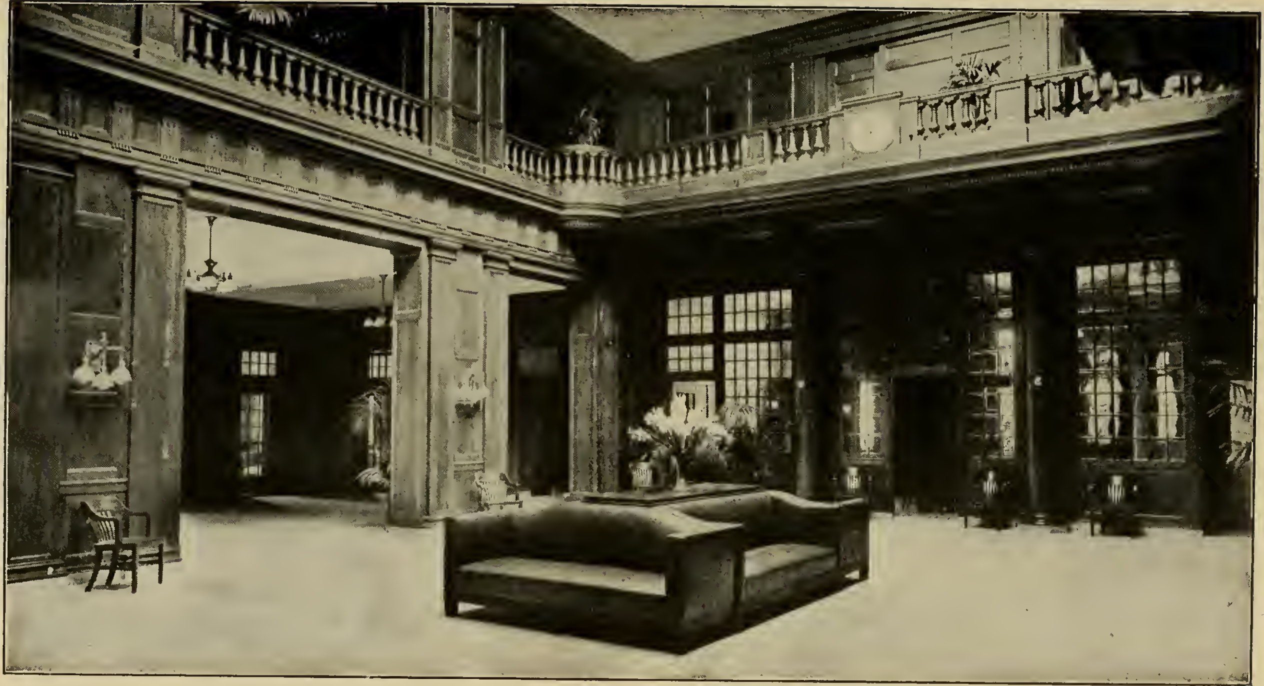
HOWARD HENRY CHARLES BINGHAM, A. B.
Executive Secretary of the School of Law

MILLAR DALAN BLACK, A. A.
Dean of the School of Liberal Arts

IRA ARTHUR FLINNER, Ph. B., A. M.
Headmaster of the Huntington School

THOMAS WEBB WATKINS, A. B.
Principal of Northeastern Preparatory School

GALEN DAVID LIGHT, A. B.
Secretary



THE LOBBY

Mechanical Engineering Students

Machine Shop Work
Dennison Manufacturing Company—Framingham

Class in Drafting
Drafting Rooms

Northeastern College

CO-OPERATIVE SCHOOL OF ENGINEERING

FACULTY OF THE SCHOOL

CARL STEPHENS ELL, A. B., M. S., Dean
52 Clement Ave., West Roxbury
Professor of Civil Engineering

PHILIP CURTIS NASH, A. B., M. C. E., 5 Mansfield St., Allston
Director of Engineering Practice and Professor of Civil Engineering

JOHN BUTLER PUGSLEY, A. B., Registrar 23 Hardy Ave., Watertown
Assistant Professor of Mathematics

JOSEPH ARTHUR COOLIDGE, S. B. 20 Martin St., Cambridge
Professor of Physics

PEARL WHITEFIELD DURKEE, B. S. 505 Huntington Ave., Boston
Professor of Electrical Measurements

ERVIN KENISON, S. B. 105 Mount Auburn St., Watertown
Professor of Descriptive Geometry

WILLIAM LINCOLN SMITH, S. B. 4 Academy Lane, Concord
Professor of Electrical Engineering

GEORGE WRIGHT SWETT, S. B. 11 Henry Ave., Melrose Highlands
Professor of Mechanical Engineering

ROBERT SEATON WILLIAMS, Ph. D. 156 Magazine St., Cambridge
Professor of Analytical Chemistry

GEORGE FRANCIS ASHLEY 163 Summer St., Somerville
Assistant Professor of Drawing

PERCY FRANCIS BENEDICT, S. B. 491 Belmont St., Belmont
Assistant Professor of Civil Engineering

JOSEPH SPEAR, A. B. 871 Salem St., Malden
Assistant Professor of Mathematics

Northeastern College

FACULTY OF THE SCHOOL

(Continued)

Stanley Leavitt Chisholm, S. B., 128 Melrose St., Melrose Highlands
Instructor in Chemical Engineering

Reginald Coggeshall, A. B. Gore C 33, Cambridge
Instructor in English

Lester Carlton Connor, S. B. 72 Medford St., Malden
Instructor in Chemical Engineering

Alfred John Ferretti, S. B. 92 Church St., Lynn
Instructor in Mechanical Engineering

George Blodgett Gee, C. E. 17 Pine St., Belmont
Instructor in Civil Engineering

Leon Frederick Girard 206 Massachusetts Ave., Boston
Instructor in Mathematics and Physics

William Francis Jones 26 Cedar Road, Belmont
Instructor in Geology

Frederick Revell Kneeland, S. B. Hotel Ludlow, Boston
Instructor in Organic Chemistry

John Robert Leighton 89 Winslow St., Everett
Instructor in Civil Engineering

Grant Lenox Miner, Jr. S. B. 50 Massachusetts Ave., Cambridge
Instructor in Civil Engineering

Leon Woodman Parsons, Ph. D. 5 Braemore Road, Brookline
Instructor in Theoretical Chemistry

Paul Phillips, A. B. 54 Rutland Square, Boston
Instructor in Industrial Chemistry

Roland Guyer Porter 39 Baker Ave., Beverly
Instructor in Physics and Mathematics

John James Sinnett 24 Bardwell St., Jamaica Plain
Instructor in Physical Training

Arthur Earle Smithies Room 624, Boston Y. M. C. A.
Instructor in Drawing

Northeastern College

FACULTY OF THE SCHOOL
(Continued)

Samuel Abbott Smith Strahan *Instructor in Chemical Engineering*	26 Hemenway St., Boston

Chester Packard Baker *Assistant in Chemistry*	53 Wendell Ave., Brockton
Abraham Albert Becker *Assistant in Chemistry*	298 Western Ave, Cambridge
Henry Fisk Carlton, B. S. *Assistant in English*	1200 Massachusetts Ave., Cambridge
Robert Huntley Clarke, Jr. *Assistant in Mechanical Drawing*	57 Greenwood St., Melrose Highlands
Kendric Pike Doane *Assistant in Civil Engineering*	109 Gainsborough St., Boston
Arthur Raymond Hawes *Assistant in Chemistry*	Sudbury
Sheldon Stokes Heap *Assistant in Electrical Engineering*	132 Atlantic St., Atlantic
Henry Leonard Nickerson *Assistant in Drawing*	26 Plumer St., Everett
Robert Ackley Noble *Assistant in Electrical Engineering*	316 Huntington Ave., Boston
Walter Carlton Richards *Assistant in Civil Engineering*	390 Front St., Weymouth
William Leo Shea *Assistant in Chemistry*	112 Huntington Ave., Boston

Northeastern College

Special Lecturers

ASA S. ALLEN
Member of the Law Firm of Curtin, Poole & Allen
"Law and Engineering"

JULIAN ARNOLD
Commercial Attachè of the U. S. Embassy in China
"Industries in China"

MATTHEW C. BRUSH
President, American National Ship Building Corp.
"The Human Equation in Business"

CHARLES B. BURLEIGH
District Manager, General Electric Company
"New England Industrial Development"

CHARLES R. GOW
President, Charles R. Gow Co., Engineers & Contractors
"Foundations of Buildings & Structures"

ALBERT P. LANGTRY
Secretary of the Commonwealth of Massachusetts
"The Social Unrest"

THOMAS E. PENARD
Engineer, Electrical Division, Edison Electric Ill. Co. of Boston
"High Potential Phenomena"

WILLIAM T. SEDGWICK
Professor of Biology & Public Health, Massachusetts Institute of Technology
"Public Health"

PAYSON SMITH
State Commissioner of Education
"Productive Education"

FRANKLIN H. WENTWORTH
Secretary-Treasurer, National Fire Protection Association
"The Significance of the Fire Waste"

WILLIAM E. WICKENDEN
Personnel Manager, Engineering Department, Western Electric Co.
"Engineering as a Profession"

GENERAL INFORMATION

Historical

In September, 1909, the Department of Education of the Boston Young Men's Christian Association began to offer Co-operative Engineering Courses in connection with the Evening Polytechnic School. At that time, the Co-operative Course students were employed by engineering firms on the one week period plan, one working one week while his alternate was going to school, and at the close of the week exchanging places so that the student who had been to school went to work. Conditions were such that the students attended both day and evening classes. Two years later it was decided to establish an engineering school, to do work of college grade, based entirely on the part-time, or co-operative plan. Thus, in 1911, was started what is now the Co-operative School of Engineering of Northeastern College.

In the eleven years that have elapsed since the inception of the idea, the School, which was started with no special educational requirements for entering students, and which had but little equipment and a registration of only eight pupils, has grown to be a recognized factor in the community, with rigid requirements of scholarship and character for entering students, thousands of dollars' worth of equipment, a highly trained and able faculty, and an enrollment of over four hundred students. It is enabling the young man of moderate financial ability to get a high-grade engineering training and at the same time not only defray his own expenses, but also become familiar with the actual practice of his profession.

This year the school has received the degree granting privilege through the Massachusetts Legislature.

Object of the School

Technical school instruction, depending on class-room work and laboratories, must always lack some of the vital characteristics of an actual manufacturing plant. One is carried on for educational purposes, while the other is operated for dividends. It is this latter fact that gives the Co-operative School idea one great advantage over the usual educational plan. Instead of training the student for several years for a line of work to which he may later find himself to be entirely unfitted, the Co-operative School at once puts the boy to work in a commercial plant. There he learns life in its vital issues, as well as the problem of getting along with men; thus early finding out whether he has made a wise or unwise choice of his life work. This training shows him the use and value of his school work, and finally gives him an unusual opportunity to acquire from actual experience that rare thing, *executive ability,* without which his life probably would be spent on the lower levels of industry.

The fundamental aim of this School is to give young men sound training in both the theoretical and practical principles upon which professional practice is based. Thus they are enabled to advance farther and more rapidly in their chosen work than they could expect to do without further education than that of a high-school course. The training is not in any sense that of a trade school, but is that of a regular engineering school of high standards.

There are four branches of engineering work offered: civil, mechanical, electrical, and chemical. The end sought is to give to students who have already had a high-school preparation, or its equivalent, a good training in the fundamental sciences of Mathematics, Chemistry and Physics, and in the important applications of the principles of these sciences to the several branches of engineering. Much stress is laid on the development of the ability to apply the acquired knowledge to new engineering problems, and an effort is made to be thorough without leading the student through a maze of mere mental gymnastics.

The courses differ from those of many schools, in that a student is not permitted a wide range of subjects from which to choose. It has been found that better results are obtained by prescribing the principal studies which the student is to pursue.

Plan of Operation of the School

To illustrate the plan of operation of the School, take the case of two men, "A" and "B," who desire to take our Mechanical Engineering Course. "A" is assigned to one of the plants of a firm that is co-operating with us. Here he is put to work, and spends five weeks working for the firm. Then "B," his alternate, who has spent the first five weeks in the School, takes "A's" place with the firm, and "A" puts in the next five weeks at school. Thus the work goes on, the two men exchanging places at the beginning of each five week period.

Relation of School to High Schools

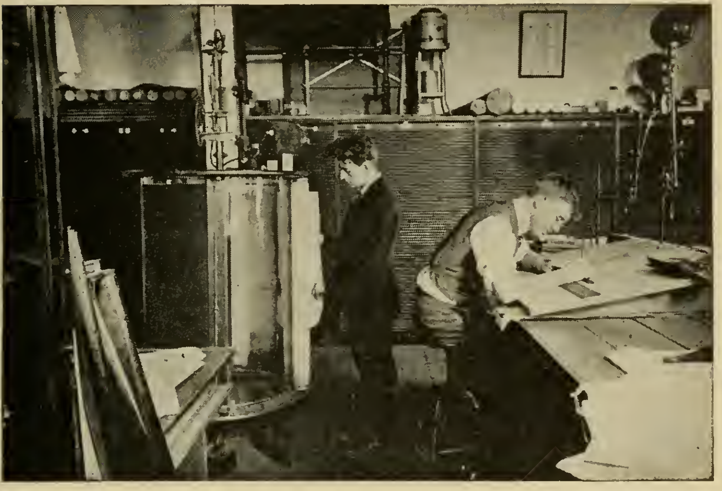
This School is peculiarly adapted to the high school graduate who, although financially unable to continue his studies further, still has the ambition and ability to get ahead if given the opportunity. Thus students who can still live at home, after being graduated from high school, are able to fit themselves for something better than the positions filled by untrained men.

This year the school has a student body made up of graduates of the following schools:

Abington High School
Alton (N. H.) High School
Amesbury High School
Annapolis Royal Academy
  (Granville Ferry, N. S.)
Anson Academy (Me.)
Arlington High School
Ashland, Mass., High School
Athol, Mass., High School
Attleboro High School
Avon High School
Belmont High School
Berkeley Preparatory School
Berlin (N. H.) High school
Beverly High School
Boston College High School
Bourne High School
Braintree High School
Brewster Free Academy (N. H.)
Bridgewater High School
Brockton High School
Burlington (Vt.) High School
Cambridge High, Latin
Chelmsford High School
Chicopee High School
Chelsea High School
Clinton High School
Cohasset High School
Commerce High School
Concord High School
Concord (N. H.) High School
Cranston (R. I.) High School
Dalton High School
Danvers High School
Dean Academy
Deep River (Conn.) High School
Dexter (Me.) High School
Dorchester High School
Marlboro High School
Mansfield High School
Marshfield High School
Mechanic Arts High School
Medford High School
Melrose High School
Milford High School
Milford (N. H.) High School
Millis High School
Montpelier Seminary
Montpelier (Vt.) High School
Mt. Hermon School
Morehead City High School
  (N. C.)
Nashua (N. H.) High School
Natick High School
New Britain (Conn.) High School
Newburyport High School
Newton High School
Norton High School
Norwell High School
Norwood High School
Orleans High School (Ind.)
Pawtucket (R. I.) High School
Peabody High School
Phillips Exeter Academy
Pittsfield High School
Plymouth High School
Portland (Me.) High School
Portsmouth (N. H.) High School
Proctor (Vt.) High School
Provincetown High School
Putnam (Conn.) High School
Quincy High School
Reading High School
Revere High School
Richford (Vt.) High School

Dummer Academy
Duxbury High School
East Boston High School
East Bridgewater High School
Eastport (Me.) High School
English High School
Essex (Vt.) High School
Everett High School
Exeter (N. H.) High School
Fall River High School
Fairhaven High School
Fitchburg High School
Foxboro High School
Framingham High School
Franklin High School
Franklin (N. H.) High School
Gardner High School
Georgetown High School
Gloucester High School
Groveland High School
Hallowell High School (Me.)
Haverhill High School
Hingham High School
Holbrook High School
Holliston High School
Holyoke High School
Hopedale High School
Horblitt School
Huntington School
Kennebunk (Me.) High School
Kingston High School
South Kingston (R. I.) High School
Lancaster (N. H.) High School
Lausitz Germany
Leicester High School
Lowell High School
Lynn Classical High School
Lynn English High School
Maine Central Ins.
Malden High School
Marblehead High School
Rindge Technical High School
Rochester (N. Y.) High School
Rochester (N. H.) High School
Rockland High School
Sacred Heart (R. I.)
Salem High School
Sanderson Academy
Sharon High School
Schuylerville (N. Y.) High School
Scituate High School
Somerville High School
Springfield High School (Tech.)
Stone High School
Stonington (Conn.) High School
Stoughton High School
Stow High School
Sudbury High School
Swampscott High School
Taunton High School
Thornton Academy (Me.)
Thompson (Conn.) High School
Thompsonville (Conn.) High School
Vinalhaven (Me.) High School
Wakefield High School
Watertown (Conn.) High School
Wellesley High School
West Roxbury High School
Westbrook Seminary
Westbrook (Me.) High School
Weymouth High School
Wilmington High School
Windham (Conn.) High School
Winthrop High School
Woburn High School
Woodstock Academy
Woodstock (Vt.) High School
Worcester Classical High School
Worcester South High School
Worcester Trade School

Students Engaged in Engineering Practice



Drafting and Blue-Printing
American Steam Gauge and Valve Company

Grinding Castings
Machine Shop—Boston Elevated Railway Co.

Students Engaged in Engineering Practice

Making a High Tension Test
Edison Electric Illuminating Company

Drafting
Designing Engineer's Office—B. & A. Railroad

ENGINEERING EQUIPMENT

The school is now housed in the new building of the Association, and has very exceptionally equipped quarters for carrying on the work of the Engineering Courses.

Mechanical Laboratories

Through the courtesy of the Massachusetts Institute of Technology officials, and also those of the Franklin Union, and Wentworth Institute, we are able to avail ourselves of the unexcelled Engineering Laboratories of those Institutions for instruction purposes in the laboratory courses of the Cooperative School.

In addition to the foregoing facilities, we have several engines of our own for use for instruction, as well as the most modern equipment for gas and fuel analysis.

Our own steam engineering plant is completely equipped with meters, scales, indicators, and all the necessary accessory equipment for making complete boiler tests, and determining the efficiency of the various appliances used in generating power, heat, and light for our new building. This places at the disposal of our classes a perfectly equipped, up-to-date, engineering department, and gives them the means of carrying on boiler tests, determining the efficiencies of various fuels and oils, taking indicator diagrams, determining the efficiency of modern reciprocating engines and turbines when direct connected to generators, as well as renders them familiar with all the various auxiliary appliances of such a plant, as condensers, pumps, air compressors, etc. The students also have the use of the equipment of our Automobile School, thus having opportunity to study the most advanced ideas in gasoline engine practice.

Mechanic Arts Laboratories

There are at present two laboratories, one for metal work and the other for woodworking and pattern work, which are available for the use of our students.

The metal working laboratory is well equipped, and affords the student an opportunity for work with various machines, as lathes, shapers, drill presses and milling machines. There are also a gas forge and a brazing furnace, together with all the required equipment for bench work instruction.

The woodworking laboratory has a power band saw, lathes, circular saw, buzz planer, and all the necessary equipment for woodworking and pattern work.

In addition to the foregoing, a small but completely equipped shop for the construction and repair of apparatus and for the use of students in connection with their thesis work has been installed. This shop is equipped with a metal and woodworking lathe, grinder, and all the necessary wood and metal-working tools. There is also a very complete set of cabinet-worker's tools for use in woodworking.

Field Instruments (Civil Engineering Department)

For work in the field the Civil Engineering Department possesses various surveying instruments, representing the principal makes and types of instruments in general use. The equipment includes transits, levels, compasses, plane table outfits, Locke hand levels, flag poles, leveling rods, stadia rods, engineers' and surveyors' chains, steel and cloth tapes, and other accessories. For higher surveying there is an aneroid barometer for barometric leveling, and a sextant reading to ten seconds for hydrographic surveying. The transits are equipped with neutral glasses and reflectors for astronomical observations.

There have recently been added to the equipment a Keuffel & Esser 6¾″ transit, a Buff & Buff 4¾″ Mountain Transit, a Keuffel & Esser 18″ Wye level, two surveyors' compasses, and a Gurley Electric Current meter for hydraulic measurements, as well as all the miscellaneous apparatus necessary to equip the extra parties that the new instruments would accommodate.

The extent of the equipment and scope of the field work itself are designed to train the student's judgment as to the relative merits of the various types of field instruments.

Design and Drafting Rooms

The School possesses large, light, and well-equipped drawing rooms for the carrying on of the designing and drafting which form so important a part of civil engineering work. These rooms are supplied with lockers containing the drawing supplies, and files containing blue prints and photographs of structures that represent the best practice. Many of the prints and photographs are of structures erected in and about Boston.

Electrical Measurements Laboratory

This is equipped with apparatus fundamentally planned for teaching the principles of measurement, rather than for the precise determination of quantitative results. Nevertheless it is necessary for the proper performance of work in the other laboratory courses that a certain amount of careful quantitative work should be done, and the equipment is being steadily increased and developed with both ends held in view.

Apparatus is available for instruction in the following: Resistance by Ohm's law, substitution and direct reflection, voltmeter methods for high resistance, insulation resistance, specific resistance, slide wire bridge, Wheatstone bridge, current by electrolysis, electrostatic capacity, inductance, Poggendorf's method of E M F comparison, etc., under the first head and for work under the second head there is considerable apparatus among which may be mentioned, a conductivity bridge, a Laboratory standard Wheatstone bridge, a Kelvin low resistance bridge, a Leeds Northrup potentiometer with two standard Weston cells, volt box and steady source of high voltage for voltmeter calibration, numerous standard shunts and a 600 ampere hour storage battery for ammeter calibration, a commutator and leads for use with the Cary-Foster method and a chemical balance.

The Instrument Room is supplied with four G.E. 300-150-15 DC voltmeters, and four double range Weston's, four single range ammeters, six millivoltmeters with twelve interchangeable shunts of various ranges up to 100 amperes, all of high grade, together with numerous similar instruments of cheaper quality for lower-class work. For alternating current testing there are:

Three General Electric type P-3 single phase wattmeters with double voltage and current ranges arranged for Y connection; two Polyphase wattmeters of similar type and ranges, one of similar type specially constructed for measurement of core loss, three integrating wattmeters and one rotating standard.

Three 300-volt, three 150-volt and three 50-volt voltmeters.

Three 50-ampere, three 25-ampere, three 15-ampere, three 10-ampere, three 5-ampere and three 1-ampere, ammeters, these all being in groups of three for polyphase work; and a Laboratory standard AC voltmeter with extension coils.

There is also a considerable amount of auxiliary apparatus such as frequency indicators, synchroscopes, and power factor meters.

Electrical Engineering Laboratory

This is equipped with numerous machines of different types, the size and voltage ratings being selected to reduce as much as possible the risk from large voltage and power apparatus, while at the same time availing the student of apparatus of commercial sizes such that the various quantities it is desired to measure will be of reasonable dimensions.

Small machines are used mostly for this reason, and also because the students in their Engineering Practice come in contact with the large sized and varied machinery of modern powerhouses and electrical plants continually.

Among the machines of this department are a pair of specially made Holtzer Cabot 5 kv-a. matched machines, constructed to operate as three phase generators, or motors, as well as synchronous converters, or double current generators. These are driven independently by 10 HP. 220 volt G. E. interpole motors, and may also be mechanically coupled for certain work. On the direct current side, these machines will also operate as shunt, series, or compound generators, either two or three wire. There is a 15 HP. Westinghouse compound motor, a 3KW. compound generator, a 1KW. series generator, a 5HP. General Electric interpole motor, a 5 HP. General Electric series motor, a 4 HP. shunt motor, two 3 HP. shunt motors, and a 2 HP. shunt motor; also a 7½ kv-a. special General Electric alternator driven by a 15 HP. Sprague interpole motor, and a 5 kv-a. Holtzer Cabot alternator which has two additional rotors, permitting its use as a squirrel-cage or phase wound induction motor. In addition, there are two 2 KW. Holtzer Cabot special machines used at present as balancers, a 7½ HP. General Electric induction motor, which can be operated two or three phase, a 15 kv-a. three phase alternator, giving practically a pure sine wave, and six General Electric transformers, 550 to 220 or 110 volts ratio, each of 3 kv-a. capacity. During the past year there has been added three special 1 K. W. single-phase transformers, with leads arranged to give various types of transformer primary and secondary connections, also a set of reactances for making up three phase inductive loads with extremely low power factor and a similar set of condensers of about 100 microfarads total.

There is also available for advanced instruction, in cooperation with the Mechanical Engineering Department, the four three-wire generators in the main generating plant. Three of these generators are driven by Ridgeway reciprocating engines and one by a Westinghouse-Parson turbine.

Physics Laboratories

The Physics department has been very completely equipped with all necessary apparatus for the experimental work that is required of the students, as well as that required for lecture demonstration. There is a large laboratory together with a lecture room devoted entirely to Physics. Among other things have been added verniers, levels, spherometers, calorimeters, thermometers, pyrometers, a spectroscope, a microscope, a spectrometer, balances, standard gram weight, lecture table galvanometer optical disk with all accessories, lenses, photometer, a full set of Weather Bureau apparatus, including a barograph, thermograph, hygrometer, barometer, maximum and minimum thermometers, etc. These, in addition to the equipment already owned, give a wide range to the experimental work that can be done.

Chemical Laboratories

The School has three laboratories completely equipped in all respects for carrying on all lines of chemical work, from that of a high school to that of most advanced college grade. They have accommodations for over one hundred and fifty students, and are suitably furnished with all the necessary appliances for chemical work. Some of these are: hoods, drying closets, a still, steam and hot water baths, electrolytic circuits, vacuum and pressure apparatus, balances, combustion furnaces, and complete sets of apparatus for the sampling and analysis of flue gases and fuels. There are also testing machines for oils, viscosimeters, and different sorts of flash point apparatus. A chemical museum is connected with this department where are kept specimens for purposes of illustration.

Libraries

The School shares the privileges of the steadily growing Y.M.C.A. Libraries in the Main Building, to which have been added more than a $1000 worth of engineering texts purchased for the Co-operative School. In addition to this, it subscribes to current periodicals on engineering and scientific subjects for the exclusive use of students. All members of the School are entitled to take books from the Boston Public Library, and this offers a very unusual opportunity to our non-resident students.

Department of Physical Training

Northeastern is one of the few colleges having facilities for all-round physical training. The gymnasium with its 12-laps running track, three basketball courts, wrestling, boxing, fencing and special exercise rooms, handball courts and bowling alleys, is one of the most complete in New England. The Natatorium is one of the best in the country. It is in a separate building, having a glass roof, admitting abundant sunlight and has a continuous supply of filtered salt water. The tank is 75 feet long and 25 feet wide. Adjoining the building is a large field equipped for athletics. Here are four tennis courts, outdoor gymnasium, basketball court, jumping pits and a track with a 100-yd. straightaway; baseball and football fields. Interclass contests are arranged in basketball, baseball, tennis, indoor and outdoor athletics, and swimming. Intercollegiate games and meets are arranged with the leading colleges in the east.

ENGINEERING PRACTICE

Correlation of Practical and Theoretical Work

The engineering practice of the student is progressive and is as carefully planned as the work done at the School. The employers who co-operate with us agree, where practicable, to employ the students in all the different departments of their establishments during their periods of engineering practice. This training is just as complete as the school work, and is just as thorough. Where possible, the course of the learner is from the handling of the raw material to the shipment of the finished product. This practical training includes the use of the machines, as well as the executive duties of the plant, so that at the end of his course the graduate may not only know how to do things, but also why they are done in certain ways; and we hope he may be of value in improving methods of work. Accurate records and grades are kept of the engineering practice of each student, and it is not possible to secure a degree unless this part of the course is completed successfully.

Number of Positions Available

The number of positions at our disposal in any one branch of engineering is necessarily limited. Thus far we have secured desirable positions for our students as the growth of the School has demanded. Nevertheless, to be at all sure of work in his chosen branch of engineering, an applicant should file his application early. Those students who apply first will get first consideration in the matter of positions. Those who wish to enter are urged to present their applications as early as possible.

The applicants who apply for admission to the School too late to be assigned to practical work, may attend the School every period, or every alternate period, as they may wish, and will be assigned to practical work as soon as an opening occurs.

Sometimes, students may secure their own positions with firms, in which case an alternate can usually be furnished by the School, if desired. Such individual arrangements are entirely acceptable to the School, and may be made by any applicant, subject to the approval of the Dean.

Attitude of Co-operating Firms

The favorable attitude of the co-operating concerns toward our plan is shown by their retention of the same students from year to year, even after graduation, and also in the fact that whenever any vacancies occur which can be filled by our men, they make immediate application for additional students to fill them. The men under whose supervision the students have been in their outside work are practically unanimous in approval of our plan, and speak highly of the enthusiasm, earnestness and intelligence the students have shown in the performance of their duties.

Working Relations

When a student is first assigned to a firm, the School gives him general information in regard to the work and a letter of introduction. At the first interview the student is expected to familiarize himself with the kind of work on which he is to be engaged while with the firm, and the conditions under which he is to work. It is expected that no student will accept employment through the school unless he can and will continue in School and with the firm in question throughout the year in accordance with the general plans of Engineering Practice. During the periods of Engineering Practice the students report for work at the regular working hours of the firm, no special privileges being granted. Students are not permitted to discontinue Engineering Practice except under unusual conditions and only by previous arrangements with the School. *In all cases of absences from Engineering Practice, whether unavoidable or not, the student or a member of his family is required to notify the employing firm by telephone immediately at or before the time of the occurrence of the absence.* This matter of notifying the employing firm immediately is very important. Failure to do so is sufficient cause for dismissal.

The school places the student at work with the employing firm and is responsible for his presence and conduct at work as well as the quality and scope of his work. All difficulties arising in regard to students who are in Engineering Practice are taken up with the School at the next following school period. *It is absolutely necessary that each student be prepared to fulfill his engineering practice obligations as faithfully during the summer months as at any other time,* and no student can ordinarily expect any longer vacation than the regular four weeks specified during the summer.

Students in the sophomore, junior and senior years are almost invariably placed with firms which give them experience directly in line with the course of study followed at school.

Freshmen, as a rule, are assigned to work not so technical in character, but designed to train the younger men in the fundamental qualities of cheerfulness, dependability, enthusiasm, and grit. These attributes are essential to the successful completion of the upper class work. They are emphasized at every opportunity during the student's college life in connection with his engineering practice, and the first year's training is designed especially to develop these habits. If a young man can form the habits of mental and physical alertness and reliability, he has laid a sure foundation for his success and happiness in after life. The detailed technical information and experience is added in the three upper years.

In general, all changes and transfers in Engineering Practice are made at the beginning of the school year in September.

Earnings

For the practical work the student does, he is paid a certain amount per hour or per week at the start, and a definite increase per hour or week after completing fixed periods of service. The sum earned is more than enough to pay the tuition and the necessary expenses of schooling, but does not cover the cost of living.

The rates of pay for students in the School are kept low so that the employer feels justified in devoting time to the instruction of the students and in transferring students from one department to another at approximately regular intervals.

By agreement with the co-operating firms the following minimum wages are paid to the students.

$10 per week for the first school year
12 per week for the second school year
14 per week for the third school year
16 per week for the fourth school year

Ordinarily a student starts with each firm at the minimum wage and is promoted as his ability may warrant. In certain cases the students receive less than the minimum stated above, but this is usually made up to them in some other way, such as a pass on the railroad for students working with the roads.

No upper limit of wages is set. The regular maximum paid by any firm at present is $24.20 per week, but the ordinary maximum is $18 to $20 even for men of exceptional ability, because the students are given the privilege of attending school on the co-operative plan and of being transferred from one department to another.

Schedules of Practical Work

Below are typical schedules of practical work that have been prepared for our students by some of the companies which are giving them employment:

Boston & Maine Railroad Co.

One Year	Erecting Dept.
One Year	Machine Dept.
One Year	Machine Dept.
One Year	Erecting Dept. Drafting Room

Simplex Wire & Cable Co.

One Year	Insulating Dept. Braiding Dept.
One Year	Cable Shop Twisting Dept.
One Year	Machine Shop Construction Gang Electrical Construction Gang
One Year	Testing Room

The Dennison Manufacturing Co.

One Year	Carpenter's Helper Pattern Maker's Helper and Case Making Mill-wright Work and Elevator, Fire Door Inspection Helper in Electrical Dept.
One Year	Machine Shop Stock Room Machine Shop Grinding Room
One Year	Power Plant Work Accident Prevention Work Filing Plans, Blue Prints, Tracing, Etc. Planning Dept. Work
One Year	Tracing and General Work Detailing and General Drafting

Crofoot Gear Works

One Year	Inspection Dept. Finishing Dept.
One Year	Hobbing Dept. Cutting Dept.
One Year	General Grinding Dept. Tool Making

Simplex Electric Heating Co.

One Year	Machine Dept.
One Year	Grinding Dept.
	Stock Dept.
	Winding Dept.
	Enameling Dept.
	Assembling Dept.
One Year	Testing Dept. First Division
	Testing Dept. Second Division
One Year	Shipping Dept.
	Drafting Dept.
	General Shop Experience

Boston & Albany Railroad Co. (Civil Engineering)

One Year	Work in Field Party
One Year	Work in Drafting Room
One Year	Masonry Inspection
	General Railroad Work
	Railroad Accounting
One Year	Railroad Accounting
	Timekeeping and Unit Costs

Condit Electrical Manufacturing Co.

One Year	Testing D. C. Apparatus
	Testing A. C. Apparatus
One Year	Switchboard
	Construction
	Installation
One Year	Blue Printing
	Drafting
	Tracing and Drafting
One Year	Engineering
	Engineering Specifications

Co-operating Firms

Aberthaw Construction Company
American Glue Company, Peabody
American Radio & Research Corporation
American Steam Gage & Valve Co.
Appleton, Thomas A., Civil Engineer, Salem
Aspinwall & Lincoln, Civil Engineers
Bay State Machinery Co.
Barnes, Rowland H., Civil Engineer
Beal, H. F., City Engineer, Waltham
Berenson Construction Co., Building Contractors
Blanchard Machine Co., Cambridge
Boston & Albany Railroad
Boston Bio-Chemical Laboratory
Boston Consolidated Gas Co.
Boston & Maine Railroad
Boston University—Laboratory
Boston Varnish Company, East Everett
Branch, Ernest W., Civil Engineer, Quincy
Brown, B. S., Consulting Engineer

Bryant, H. F., Civil Engineer
Buff & Buff Manufacturing Co., Jamaica Plain
Butt, H. G., Manufacturing Co.
Carr, J. Lewis, Civil Engineer, Chelsea
Condit Electrical Manufacturing Co.
Coolidge & Shattuck, Architects
Crittenden Manufacturing Co.
Crocker, H. S., Brockton City Engineer
Crofoot Gear Works, Cambridge
Crosby Steam Gage & Valve Co., Charlestown
Dennison Manufacturing Co., Framingham
Eastman & Bradford, Civil Engineers, Lynn
Edison Electric Illuminating Co.
Evans, R., Essex County Engineer, Salem
Evatt Construction Co.
Farnham, Ralph J., Civil Engineer, Wellesley
Filts & Barker, Natick
Fuller, George A., Company, Constructors
Gannett, Charles H., Civil Engineer
General Electric Company, Lynn
Glenlyon Dye Works, Saylesville, R. I.
Golding Manufacturing Co., Franklin, Mass.
Harding Manufacturing Co., Mansfield
Humphreys, C. B., Surveyor for Land Court
Hunt-Spiller Corporation, Iron Founders
Jonsberg, F. F., Company, Engineers
Kinney Manufacturing Co., Jamaica Plain
Knott, L. E., Apparatus Co., Cambridge
Leonard Engineering Co., Everett
Lever Bros. Co., Soap Manufacturers
Lewis, Green, McAdams & Knowland
Lewis-Shepard Company
Ley, Fred T., Construction Co.
Long, J. H., Machine Co.
Lustron Chemical Co.
Massachusetts Institute of Technology
McClinock & Woodfall, Civil Engineers
Merchant, A. P., Company
Mertin, Dr. Rudolph
Miles, George W., Chemist
Monks & Johnson, Structural Engineers
Moss Electrical Co., Putnam, Conn.
New England Structural Co.
New York, New Haven & Hartford Railroad
Northeastern College Laboratories
Norton Company, Worcester
Perry, G. W., City Engineer, Putnam, Conn.
Plymouth Rubber Company, Canton
Prescott, Samuel C., Sanitary Chemist
Providence Dyeing, Bleaching & Calendering Co.
Punchard, William H., Landscape Architect
Rockwood Sprinkler Co., Worcester
Ruggles & Klingeman Co., Salem
Sampson Electric Co., Canton
Sampson, George T., Civil Engineer, Medford
Sanborn Company, Instrument Manufacturers

Sherry, Frank E., Civil Engineer
Simplex Electric Heating Co., Cambridge
Simplex Wire & Cable Co., Cambridge
Sturtevant, B. F., Company, Hyde Park
Titus, J. E., Civil Engineer, Newton Center
Trimont Manufacturing Co., Roxbury
Trufant, A. P., Civil Engineer, Brockton
Tuck & Gilman, Architects
United Shoe Machinery Co., Beverly
Upham Shoe Co., Stoughton
Vennard, William L., City Engineer, Lynn
Warren Brothers Co., Paving Materials Laboratory
Werby, Benjamin, Company
Werby Laboratories
Whidden-Beekman Co., Construction Engineers
Whitman & Howard, Civil Engineers
Whitney, Charles F., Civil Engineer

REQUIREMENTS FOR ADMISSION

General Statement

In general, the preparation necessary to enable an applicant to pursue successfully one of the regular courses in the Co-operative School corresponds to the four-year course of study offered by high schools of the better grade. The requirements of age and scholarship are regarded as the minimum in all ordinary cases, and only exceptional circumstances will justify any relaxation. Parents and guardians are advised that it is generally for the ultimate advantage of the student not to enter under the age of sixteen years. Every applicant must furnish references as to his character and ability, and must show cause why he may reasonably be expected to make a success of his course, both in the School and in Engineering Practice. He must be willing and able to work hard, both mentally and physically.

Admission to the First Year

Students are admitted to the first year at the opening of the Fall Term in September and again at the opening of the Spring Term in February.

Applicants for admission as regular students to the Co-operative School of Engineering are required to present evidence of graduation from accredited four-year high schools, or the equivalent, and to have included in their courses of study Algebra as far as Quadratics and Plane Geometry. The completion of fifteen units of preparatory subjects satisfactory to the Committee on Admission is considered equivalent qualification. In special cases, however, students presenting thirteen units which are satisfactory to the Committee on Admission may be permitted to enter with two units conditioned, provided these conditioned units are made up, as prescribed by the Committee on Admission, in Northeastern Preparatory School (evening school) or some other approved preparatory school.

Students whose high school courses have not included the required Algebra and Plane Geometry must take special entrance examinations, the dates of which are scheduled elsewhere. Certificates of entrance examinations passed for admission to colleges, or technical schools of good standing, may be accepted in lieu of entrance examinations.

In exceptional cases a student who is not a high school graduate may be allowed to enter as a special student, but only after his case has been passed on favorably by the Committee on Admission and the Dean. Every applicant is urged to remain in high school until he is graduated even though he could qualify for entrance before receiving his high school diploma.

A student obtaining a low rating on his entrance examinations, or who may not be eligible to assignment to Engineering Practice for other reasons, may by special permission be allowed to attend school either every period or every alternate period. Such students may be required to take a special intensive course in mathematics given in the first part of the first year, in addition to the regular first year work. When a student's record justifies such a procedure, he may be assigned to Engineering Practice.

Application for Admission

Each applicant for admission to the School is required to fill out an application blank, whereon he states his previous education, as well as the names of persons to whom reference may be made in regard to his character and previous training.

The last page of this catalog is in the form of an application blank. It should be filled out in ink and forwarded with the required five dollar deposit, to Carl S. Ell, Dean, 316 Huntington Avenue, Boston, Mass.

Upon receipt of the application blank, properly filled out, together with the required deposit, the School at once looks up the applicant's references and high school records. When replies have been received to the various inquiries instituted, the applicant is at once advised as to his eligibility for admission to the School. All applicants must meet the Dean for a personal interview before being finally accepted by the School.

First Tuition Payment

Should a student wish to be assigned to a position with a co-operating firm before the regular opening of School, he is required to fill out a registration card and also an application for membership in the Association. The first payment of tuition must be paid before he will be assigned to any position at Engineering Practice.

Before any student shall be allowed to attend classes, he shall have made the first tuition payment. This is in addition to the application fee of five (5) dollars and the student activities fee of ten (10) dollars, and may be paid at any time before school opens.

Birth and Educational Certificates

The law in regard to the hours and conditions of labor by minors, makes it necessary that all students under twenty-one years of age shall obtain Educational Certificates before they can be accepted by co-operating firms. For those students who plan to take the practical work, and who live outside of Boston, it will save time and trouble to bring a Certificate of Birth, or an Educational Certificate, with them on coming to Boston. The Educational Certificates are obtained free, upon request, from the Superintendent of Schools in the city, or town, where the student lives, if he lives in Massachusetts. For students living in other states a Certificate of Birth, or its equivalent, is all that will be necessary.

Subjects for Examination

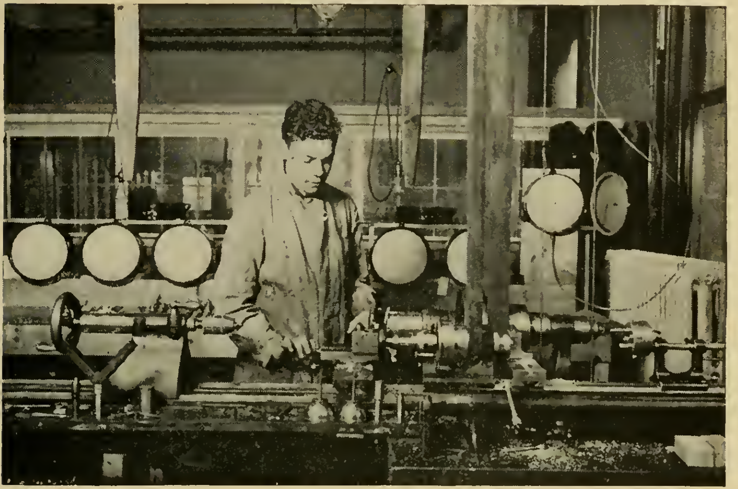
Applicants who have not passed Algebra to Quadratics and Plane Geometry satisfactorily in their courses of study in high school are required to pass entrance examinations in these subjects.

The detailed requirements in these subjects are as follows:

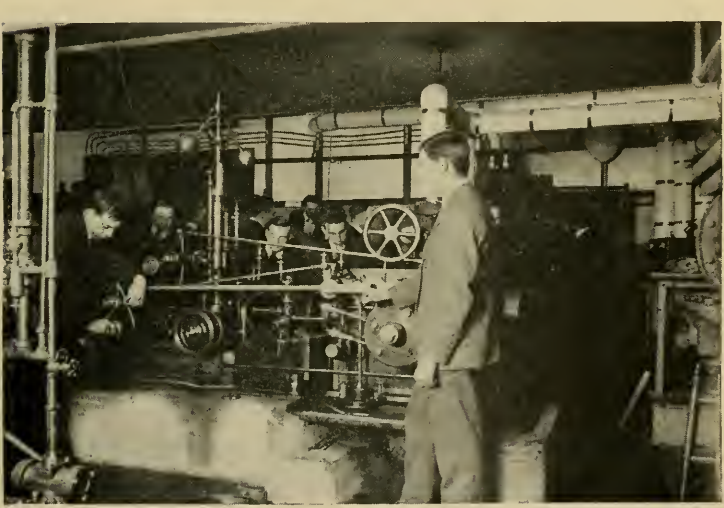
Algebra

The four fundamental operations for rational algebraic expressions; factoring, determination of highest common factor and lowest common multiple by factoring; fractions, including complex fractions; ratio and proportion; linear equations, both numerical and literal, containing one, or more, unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and numbers; exponents, including the fractional and negative.

Mechanical Engineering Students



Turning Valve Parts
Sanborn Engineering Company



Setting Valves on a Corliss Engine
Class in Engineering Laboratory

Chemical Engineering Students

Testing Road Materials
Warren Bros.—Paving Materials

Analyzing Steel
General Electric Company—Lynn

Plane Geometry

The usual theorems and constructions of good text-books, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas, regular polygons and the measurement of the circle. The solution of numerous original exercises, including loci problems. Applications to the mensuration of lines and plane surfaces.

Copies of Former Entrance Examinations

By writing the School, prospective applicants may receive copies of former entrance examinations. These copies are available for distribution and may be obtained at any time.

Entrance Examinations in Boston

Examinations for admission to the first year class will be held at 316 Huntington Avenue on June 24 and on September 9, 1920.

Students are advised to attend the June examinations, if possible, in order that any deficiencies then existing may be made up in September, before entrance.

Time of Examinations

Thursday, June 24, 1920—
  10:00 a. m. to 12:00 m., Algebra;
  1:00 p. m. to 3:00 p. m., Plane Geometry.
Thursday, September 9, 1920—
  10:00 a m. to 12:00 m., Algebra;
  1:00 p. m. to 3:00 p. m., Plane Geometry.

No fees are to be paid at the time of the examination.

Summer Preparatory Schools

There are day and evening summer preparatory schools, conducted by the Northeastern Preparatory School, and students having entrance conditions, or requiring further preparation for the entrance examinations, may avail themselves of this opportunity to cover the desired work.

Probation Period

When, for any reason, it is deemed advisable, the School reserves the right to place any entering student upon a period of probation, extending from one to three months, before placing him at practical work. Whether he shall be placed at work at the end of this time or not will be determined by the character of the work that he has accomplished during this probationary period.

SCHOOL INFORMATION IN DETAIL

Location

The buildings are located at 316 Huntington Avenue, just beyond Massachusetts Avenue, and are within easy access to the various railroad stations and the business and residential sections. A map is shown on the opposite page.

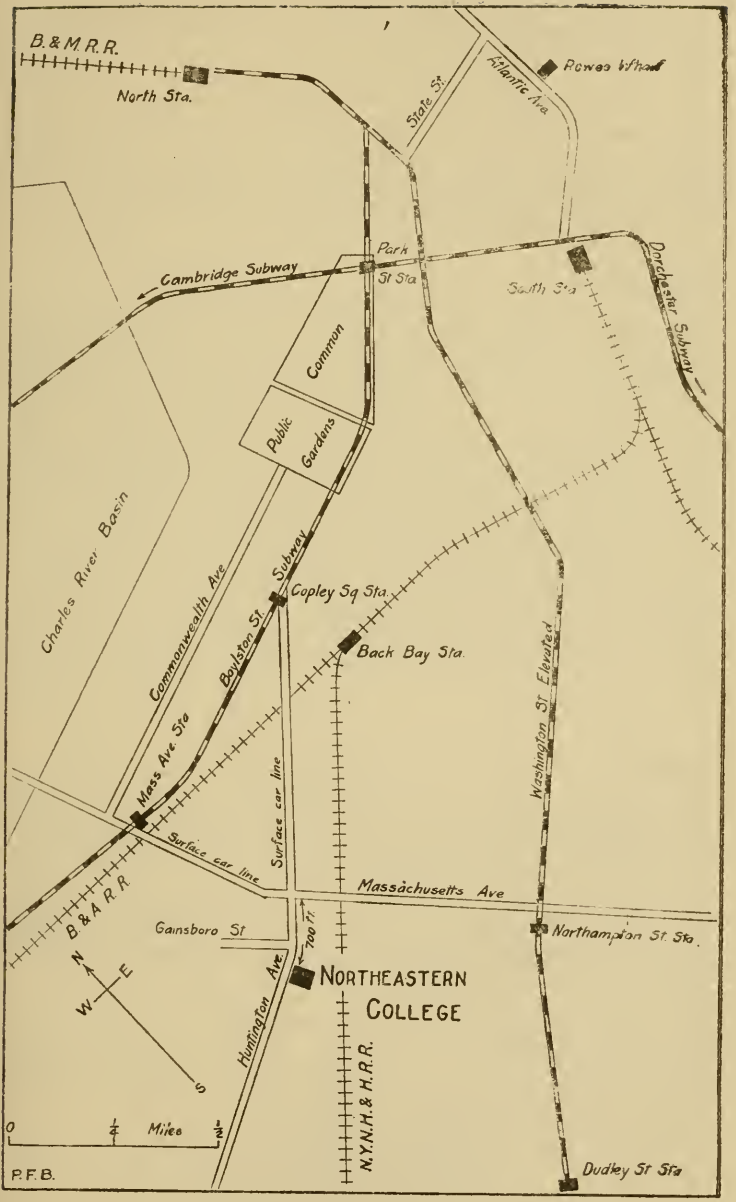
Residence

It has been found to be much more satisfactory for the student to live within easy access of Boston, than to live out twenty-five or thirty miles. The saving of time and effort more than offset any increased expense.

There are excellent accomodations at very moderate rates in the dormitories in our new building. These rooms may be had separately or in groups with a common reception room. The price varies from $2.25 per week, upwards. Since board costs about $6.00 per week a student can get room and board for from $8.25 per week upwards.

Residence in the dormitories gives the student opportunity to use the drafting rooms and laboratories outside of class hours, and to confer easily with his instructors about his college work. It also gives him a wider range in the choice of a co-operating position since he can readily report for work at 7 A. M. if necessary, which is impossible for those living at a distance. Moreover dormitory residence gives the student close connection with the activities of college life, such as the college paper, orchestra, athletics and so forth.

For these reasons it is ordinarily requisite that students, especially the freshmen, shall live at the dormitories or nearby, but by special permission from the Dean arrangements can


B. & M. R. R.
North Sta.
State St.
Atlantic Ave
Rowes Wharf
Park
St Sta
Cambridge Subway
South Sta
Dorchester Subway
Common
Public
Gardens
Charles River Basin
Commonwealth Ave
Boylston St.
Subway
Copley Sq Sta.
Back Bay Sta.
Washington St Elevated
Mass Ave. Sta
Surface car line
Surface car line
Massachusetts Ave
B. & A. R. R.
Gainsboro St
700 ft.
Northampton St. Sta.
NORTHEASTERN
COLLEGE
Huntington Ave.
N
E
W
S
N. Y. N. H. & H. R. R.
0
¼
Miles
½
P. F. B.
Dudley St Sta

be made to live at home, and very often co-operating firms can be found nearby for such men.

The School officials have no authority in the matter of dormitory assignments. Students should write the House Secretary for rooms in the dormitories. The Y. M. C. A. maintains a registry of suitable rooms in nearby houses which may be consulted in the Social Office on the first floor.

School Year

The school year is of forty-eight weeks duration divided into twenty-three weeks of school work and twenty-five weeks of engineering practice. Thus each student gets four weeks vacation each year. The twenty-three weeks of school work consist of a Fall Term of ten weeks, a Spring Term of ten weeks, and a Summer Term of three weeks. The arrangement of these terms can be found on the yearly calendar at the front of this catalog, arranged in different kinds of type.

The Fall Term begins each year on the second Monday in September. This is the beginning of the school year for all students. The Spring Term follows immediately after the Fall Term, and then the school year closes with a Summer Term of three weeks.

Attendance

Students are expected to attend all exercises in the subjects they are studying, unless excused by the Dean. Exercises are held, and students are in general expected to devote themselves to the work of the School, between 9 A. M. and 4:30 P. M. with a half hour lunch period, on every week day except Saturday. Saturday classes are held only between 9 A. M. and 1 P. M.

Four-Year Courses

Regular four-year courses, leading to the degree are offered in the following branches of engineering:

I. Civil Engineering.
II. Mechanical Engineering.
III. Electrical Engineering.
IV. Chemical Engineering.

Descriptions of these courses and schedules showing the subjects of instruction included will be found on succeeding pages.

Tuition Fees

An application fee of five (5) dollars is required when the application is filed. This fee is non-returnable if the applicant is accepted. If he is rejected, one-half the fee will be returned.

The tuition fee in each course is one hundred and seventy-five dollars ($175) per year for each of the four years and must be paid by entering students as follows: Sixty dollars ($60) at the beginning of the Fall Term; fifty dollars ($50) December 1; forty dollars ($40) March 1 and twenty-five dollars ($25) June 1.

All students who were in attendance at the school June 1, 1920 will be permitted to complete their courses of study at the same rate of tuition as was charged when they first registered in the School but all such students will be charged a tuition fee of twenty dollars ($20) for the Summer Term in addition to the regular tuition. The tuition fee for all such students in the four-year courses is payable as follows: Sixty dollars ($60) at the beginning of the Fall Term; thirty-five dollars ($35) December 1; thirty dollars ($30) March 1 and twenty dollars ($20) June 1.

Failure to make the required payments on time renders the student liable to be barred from his classes until the matter has been adjusted with the Bursar.

The tuition fee includes the regular $2.00 membership in the Boston Y. M. C. A.

Student Activities Fee

Each student in the School is charged a student activities' fee of ten dollars ($10). This fee is payable at the time of registration, is non-returnable, and includes the gymnasium fee, membership in the "CO-OP A. A." and subscription to the school paper "THE CO-OP."

Laboratory Fee and Breakage Deposit

All students taking Chemical Laboratory work are charged a nominal fee of five dollars per year. This fee is non-returnable after a student has enrolled and been assigned his desk in the laboratory. Students taking Chemical Laboratory work are also required to make a deposit of $5 at the beginning of each year from which deductions are made for breakage and destruction of apparatus in the Laboratory and any remaining portion is returned to the student at the end of the school year. In case the charge for such breakage or destruction of apparatus is more than $5 the student is charged this additional amount.

Payments

All payments should be made to Galen D. Light, Bursar.

All checks should be made payable to The Bursar, Northeastern College.

Refunds

Refunds will be granted in accordance with the regular rules of Northeastern College. In computing refunds, students shall be charged at the rate of seven and one-half dollars per week for each week of school attendance, and in addition to this shall be charged an extra twenty dollars over and above this weekly rate. Refunds shall be computed from the day on which the School receives formal notice of student's intentions to leave, at which time also all his supplies shall be returned, or paid for.

Books and Supplies

Inasmuch as many of our students desire to purchase their own books and supplies while in school in order to have these for future use after being graduated and inasmuch as the College does not feel justified in continuing the policy of furnishing books and supplies to the students free of charge, the issuing of such supplies will be discontinued in June 1920.

All supplies may be purchased at the College Book Store at a cost of twenty to twenty-five dollars per year. The earnings of the students for their services with co-operating firms considerably exceed the cost of tuition, fees, membership in the Y.M.C.A., the cost of books and supplies, and incidental expenses. The purchase of supplies is therefore not a burden to the student.

Elective Subjects

Students electing any subject not included in their regular schedule will be required to take all examinations in that subject, and to attain a passing grade, before they will be eligible for a degree.

Status of Students

The ability of students to continue their courses is determined by means of daily work and examinations, but regularity of attendance and faithfulness to daily duties are considered equally essential.

Any student failing to make a satisfactory record, either in school or practical work, may be removed from his position in practical work, or from the School.

A special student is permitted to attend the School, subject to the approval of the Faculty, and may be permitted to take such subjects as the School offers without having passed dependent subjects.

Examinations

Examinations covering the work of the term are usually held at the close of each term. Exceptions may be made in certain courses where, in the opinion of the instructor examinations are not necessary. When a final examination is taken, the year's rating in the subject is usually based one third on the examination and two thirds on the record for the work.

Condition examinations for all courses are given during the afternoons of the second week in September for Division A, and of the third week in October for Division B, but condition examinations are not given for courses in which no final examination is given. Condition examinations for all courses which end at mid-years are also given the second week in May for Division A, and the second week in June for Division B. Special examinations can be arranged for only by vote of the Faculty, and for all such examinations the College requires the payment of a special fee of five dollars.

Rules of Standing in Scholarship

A student's grade is officially recorded by letters and percentages as follows: A, excellent, 90-100 per cent; B, good, 80-89 per cent; C, fair, 70-79 per cent; D, passable, 60-69 per cent; F, work incomplete or unsatisfactory, 40-59 per cent; FF, complete failure, below 40 per cent.

A mark of F in any particular subject entitles the student to make up the unsatisfactory work, or to take a condition examination. This letter is given for all grades below 60 per cent on intermediate reports.

A mark of FF denies the privilege of taking a condition examination, and the whole course must be repeated.

A student who does not remove a condition before that course is repeated a year later, must take the course over again. A condition in more than one subject involves the loss of the privilege of being a candidate for graduation with the student's class, and may involve the loss of assignment to Engineering Practice.

The responsibility for the removal of a condition rests with the student, who is required to ascertain when and how the condition can be removed.

No student may qualify as a candidate for a degree in any given year unless clear in all the required subjects of the lower years of his chosen course. He must also be in good standing in all courses for which he is enrolled.

Entrance requirements or preparatory subjects pursued in the School are considered as required school work.

Cases of special students will be settled by the appropriate standing committees of the Faculty.

Absences

No "cuts" are allowed, and a careful record of attendance upon exercises is kept for each student. Absence from exercises regularly scheduled in any subject will seriously affect the standing of a student, and may cause the removal of the subjects from which he is absent from his schedule and the listing of these subjects as conditioned subjects. In case he presents a reasonable excuse for the absence however, he may be allowed to make up the time lost and be given credit for the work; but he must complete the work at such time and in such manner as his instructor in the subject, with the approval of the Head of his course, shall designate. Laboratory work lost can only be made up when it is possible to arrange for the necessary time during hours when these departments are open for regularly scheduled instruction. Absences from exercises immediately preceding or following a recess are especially serious and entail severe penalizing.

Reports of Standing

Reports of standing of all students are issued four times a year, which will be at the end of each five week school period. In addition to these regular stated periods, a special report on the subjects taken during the summer term will be issued immediately at the close of the summer term. Reports are given out by the advisers only, none being issued from the main office. All questions relative to marks are to be discussed with the student adviser who, in turn, will make all necessary recommendations to the Scholarship Committee.

When a student fails to pass in any subject, a notification may be sent to his parents, or guardian, to that effect, so that we may have the home influence exerted to bring his work up to a higher rating.

Every effort is made to keep the student up in his studies. Parents and students are always welcomed by the Dean for conference upon such matters. Special reports on a student's work will be sent to parents at any time, upon request.

Parents or guardians will be notified in all cases when students are advised, or required, to withdraw from the School, or placed on probation.

Conduct

It is assumed that students come to the School for a serious purpose, and that they will cheerfully conform to such regulations as may from time to time be made. In case of injury to any building, or to any of the furniture, apparatus, or other property of the School, the damage will be charged to the student, or students, known to be immediately concerned; but if the persons who caused the damage are unknown, the cost for repairs may be assessed equally upon all the students of the School.

Students are expected to behave with decorum, to obey the regulations of the School, and to pay due respect to its officers. Conduct inconsistent with the general good order of the School, or persistent neglect of work, if repeated after admonition, may be followed by dismissal, or, in case the offense be a less serious one, the student may be placed upon probation. The student so placed upon probation may be dismissed if guilty of any further offense.

It is desired to administer the discipline of the School so as to maintain a high standard of integrity and a scrupulous regard for truth. The attempt of any student to present, as his own, any work which he has not performed, or to pass any examination by improper means, is regarded as a most serious offense, and renders the offender liable to immediate expulsion. The aiding and abetting of a student in any dishonesty is also held to be a grave breach of discipline.

REQUIREMENTS FOR GRADUATION

The school grants the degrees of:

Bachelor of Civil Engineering (B. C. E.)
Bachelor of Mechanical Engineering (B. M. E.)
Bachelor of Electrical Engineering (B. E. E.)
Bachelor of Chemical Engineering (B. Ch. E.)

To receive the degree of the School the student must attend the School not less than one year, which must be that immediately preceding his graduation. He must complete the prescribed studies of the four years, and must, also, pass final examinations, if required, on subjects pertaining especially to his course. In addition to this, he must complete satisfactorily a schedule of Engineering Practice under the supervision of the Faculty. The student must, also, prepare a thesis on some subject included in his course of study, or an account of some research made by him, or an original report upon some machine, a work of engineering, or an industrial plant. This thesis, or design, must be approved by the Dean. Theses are to be written on one side only of paper of good quality, 8 x 10½ inches in size, with an inch margin on each side. Theses must be handed to the Dean not later than the first day of the final examination period. All theses and records of work done in preparation of theses, are the permanent property of the School.

The degree of the School represents not only the formal completion of the subjects in the selected course of study, but also the attainment of a satisfactory standard of general efficiency. Any student who does not show in the fourth-year work of his course that he has attained such a standard, may be required, before receiving the degree, to take such additional work as shall prove his ability. A fee of ten dollars ($10.00) is required of all candidates for a degree. This fee must be paid at the beginning of the Spring term.

POSITIONS HELD BY GRADUATES

The graduates of the School have been able to secure positions of the same grade, commanding the same salaries, as the graduates of other good technical schools. Some of them have become engineers in charge of construction, some electrical engineers, some designing draftsmen; some have been employed by the State, or Federal Government, under Civil Service, and still others have gone into teaching. The success of those who have been graduated from the School is the best evidence of the value and thoroughness of the training offered.

STUDENT ACTIVITIES

Outside Interests

A moderate participation in social and athletic activities is encouraged by the Faculty, although a standard of scholarship which is incompatible with excessive devotion to such pursuits is required of the students.

Clubs and Teams

The student body has organized a number of groups, or clubs, and this year we have a Glee Club and Orchestra, in addition to our Basketball and Baseball Teams.

The various activities of the teams are financed by apportionment from the Student Activities Fee.

Socials

In order to provide for the social intercourse of the students, as well as to enable the men in the different divisions to meet one another, socials and entertainments are held for their exclusive enjoyment. An out-door field meet is also held yearly, near the close of the school year, at which time various interclass competitive games are enjoyed.

"The CO-OP"

The students issue, twice a month, a paper called "THE CO-OP." Pertinent articles by prominent men, as well as school information, make this feature of the school activities very valuable. "THE CO-OP" has met with such unqualified success since it was first published in 1916 that it will be retained as a permanent feature.

"The Cauldron"

"The Cauldron" is the year-book of the Co-operative School and is similar to other college annuals issued by the students of most colleges and universities in the spring of each year. This publication carries the usual review of the year's work and activities, classes, socials, etc.

Professional Society

The students in the various courses with the evening school students and alumni have organized a professional society known as the Northeastern College Engineering Society for the closer association of the students of the School, and for the discussion and consideration of various problems and new knowledge in the Engineering Field. Meetings are held every few weeks, at which the members are addressed by engineers and other men of prominence. There are four sections of the society, one for each course in the School, namely: The Civil Engineering Section, the Mechanical Engineering Section, the Electrical Engineering Section, the Chemical Engineering Section.

COURSES OF STUDY

General Statement

The schedules of the various courses are given on the following pages. The first year, it will be observed, is practically the same in all courses. A few exceptions are made in courses where students need some special elementary training in their professional subjects, in order that they may be of more use to their employers in their Engineering Practice.

The school year comprises twenty-three weeks of class work for each division. The twenty-three weeks are divided into two terms of ten weeks each, called the Fall Term and Spring Term, and a Summer Term of three weeks. In the schedule which follows each course is followed by two numbers: the first number, under the column marked "Ex," indicates the number of hours of class work in recitation, laboratory, drawing room, or field work per week; the second number, under the column marked "Prep," indicates the number of hours of outside preparation that have been assigned as the minimum weekly requirement for each subject. The work is so planned that the student will be required to spend from forty-eight to fifty-two hours per school week in preparation and class work. The number preceding each subject in the schedule is the number by which that subject is identified in the descriptive matter under "Subjects of Instruction."

When a student elects a course, he is required to complete all subjects in that course not indicated as "Optional," in order to be graduated. No subject is to be dropped, or omitted, without the consent of the Committee on Scholarship and the approval of the Dean.

CIVIL ENGINEERING

The Civil Engineering Course is designed to give the student a broad education in those subjects which form the basis of all branches of technical education, and a special training in those subjects comprised under the term "Civil Engineering." The student receives a sound training, both theoretical and practical, in the sciences upon which professional practice is based.

Civil Engineering covers such a broad field that no one can become expert in its whole extent. It includes Topographical Engineering, Municipal Engineering, Railroad Engineering, Structural Engineering, and Hydraulic and Sanitary Engineering. It covers land surveying, the building of railroads, harbors, docks and similar structures; the construction of sewers, waterworks, roads, and streets; the design and construction of girders, roofs, trusses, bridges, buildings, walls, foundations, and all fixed structures. All of these branches of Engineering rest, however, upon a relatively compact body of principles, and in these principles the students are trained by practice in the class room, drawing room, the field, and the testing laboratory.

The course is designed to prepare the young engineer to take up the work of the design and construction of structures, to aid in the location and construction of steam and electric railways, and to undertake intelligently supervision of work in the allied fields of mining, architectural, and electrical engineering, and general contracting.

I. CIVIL ENGINEERING

FIRST YEAR

	FALL TERM	Hours per week			SPRING TERM	Hours per week	
		Ex.	Prep.			Ex.	Prep.
010-1	English	2	4	010-1	English	2	4
021-1	Trigonometry	4	6	022-1	Analytic Geometry	4	6
030-1	Physics Laboratory	2	2	030-1	Physics Laboratory	2	2
031-1	Physics	4	6	031-1	Physics	4	6
041-1	Mechanical Drawing	5	0	041-2	Mechanical Drawing	4	0
11-1	Surveying	2	4	11-1	Surveying	2	4
11-2	Surveying, F. & P.	5	0	11-2	Surveying F. & P.	5	0
90-1	Physical Training	2	0	90-1	Physical Training	2	0

043-1	*Descriptive Geometry	20	10
061-1	*Economics and Sociology	5	10
90-1	*Physical Training	2	0

SECOND YEAR

	FALL TERM	Hours per week			SPRING TERM	Hours per week	
		Ex.	Prep.			Ex.	Prep.
023-1	Calculus	4	6	023-2	Calculus	3	6
031-2	Physics Laboratory	2	2	032-2	Physics Laboratory	2	2
032-1	Light	2	3	032-3	Heat	3	4½
042-1	Machine Drawing	3	0	042-2	Machine Drawing	3	0
11-3	Surveying	2	4	12-1	Railroad Surveying	2	4
11-4	Surveying F. & P.	5	0	12-2	Rrd. Surveying F. & P.	5	0
21-1	Applied Mechanics	3	6	21-1	Applied Mechanics	3	4½
30-1	Elem. of Electricity	2	2	30-1	Elem. of Electricity	2	2
90-1	Physical Training	2	0	90-1	Physical Training	2	0

044-1	*Mechanism	15	10
062-1	*Government	5	10
90-1	*Physical Training	2	0

THIRD YEAR

	FALL TERM	Hours per week			SPRING TERM	Hours per week	
		Ex.	Prep.			Ex.	Prep.
051-1	Geology	2	2	14-1	Theory of Structures	3	6
12-3	Railroad Engineering	3	6	14-2	Structural Drawing	3	3
12-4	Rrd. Engineering F. & P.	5	0	21-2	Strength of Materials	3	6
21-2	Strength of Materials	3	6	23-3	Heat Engineering	3	6
30-3	Applied Electricity	2	4	30-3	Applied Electricity	2	4
30-4	Applied Elec. Lab.	3	3	30-4	Applied Elec. Lab.	3	3
40-1	Inorganic Chemistry	3	4	50-1	Engineering Conference	1	0
50-1	Engineering Conference	1	0	90-1	Physical Training	2	0
90-1	Physical Training	2	0				

063-1	*History of Science	5	10
13-1	*Hydraulics	10	20
90-1	*Physical Training	2	0

FOURTH YEAR

	FALL TERM	Hours per week			SPRING TERM	Hours per week	
		Ex.	Prep.			Ex.	Prep.
14-3	Engineering Structures	6	12	14-3	Engineering Structures	6	12
14-4	Structural Design	6	0	14-4	Structural Design	6	0
15-1	Concrete	2	4	15-1	Concrete	2	4
15-2	Concrete Design	3	0	15-2	Concrete Design	3	0
16-1	Materials	2	4	16-2	Testing Materials Lab.	2	2
16-3	Foundations	2	2	17-1	Highway Engineering	2	2
50-1	Engineering Conference	1	0	50-1	Engineering Conference	1	0
51-1	Thesis	1	3	51-1	Thesis	1	6
90-1	Physical Training	2	0	90-1	Physical Training	2	0

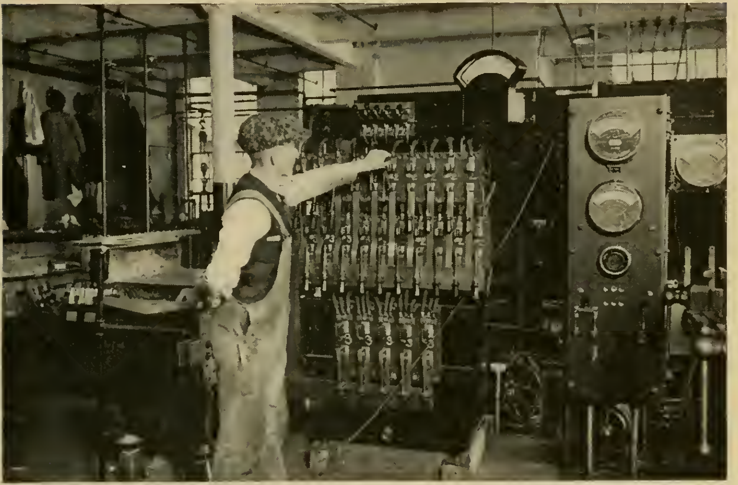
*Summer Term: three weeks

MECHANICAL ENGINEERING

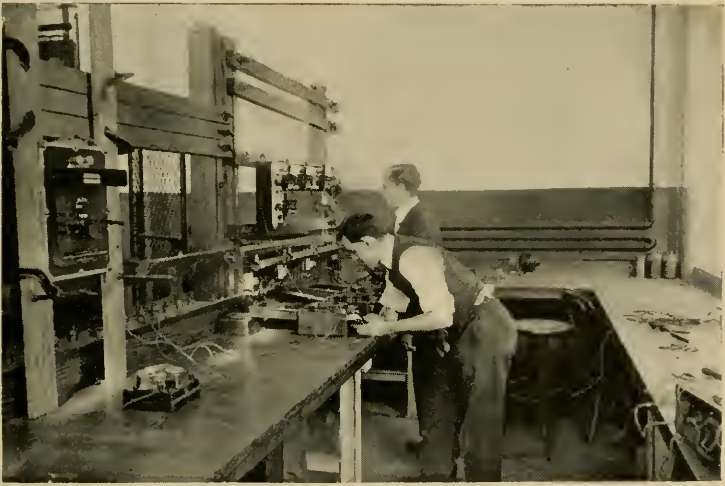
The Mechanical Engineering course is designed to give the student a broad foundation in those fundamental subjects which form the basis for all professional engineering practice, and especially to equip the young engineer with a knowledge of the various phases of Mechanical Engineering. The course embraces instruction by text-book, lecture, laboratory, and work-shop practice, with special reference to the following branches: Applied Mechanics, Heat Engineering, Industrial Engineering, Hydraulic Engineering, Applied Electricity, and Machine Design.

The instruction aims to develop in the student the ability to think clearly and logically in the application of fundamental principles to engineering problems. The class-room work in the professional subjects is arranged with due regard to modern industrial conditions, in order that the student may connect theory with practice and appreciate the necessity of both in order to become a successful engineer. With this in view, special courses are given involving a discussion of problems which have presented themselves to the students and requiring a familiarity with the contents of current engineering periodicals. At all times it is sought to develop self-confidence in the student, and he is encouraged to take the initiative.

Electrical Engineering Students

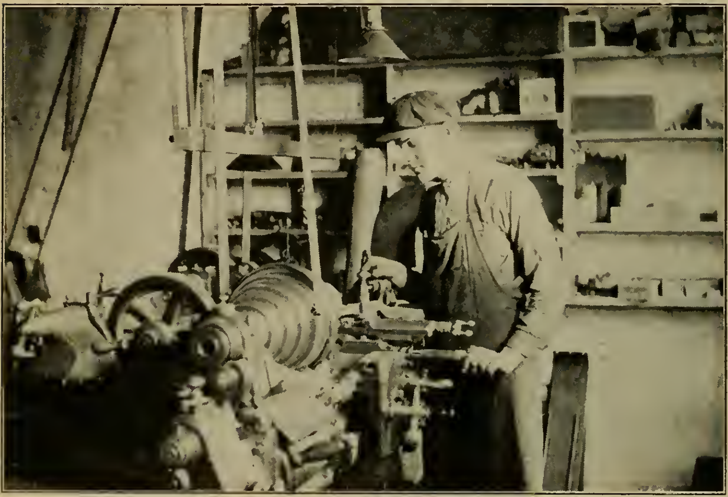


Testing a 10,000 Ampere Storage Battery Control Panel
Condit Electrical Mfg. Co.



Testing Meters
Edison Electric Illuminating Co.

Mechanical Engineering Students



Operating a Lathe
H. G. Butt Mfg. Company

Wood Working
Pattern Shop—Boston Elevated Railway Co.

II. MECHANICAL ENGINEERING

FIRST YEAR

	FALL TERM	Hours per week Ex.	Prep.		SPRING TERM	Hours per week Ex.	Prep.
010-1	English	2	4	010-1	English	2	4
021-1	Trigonometry	4	6	022-1	Analytic Geometry	4	6
030-1	Physics Laboratory	2	2	030-1	Physics Laboratory	2	2
031-1	Physics	4	6	031-1	Physics	4	6
041-1	Mechanical Drawing	5	0	041-3	Mechanical Drawing	9	0
24-1	Production Engineering	2	3	24-2	Production Engineering	2	3
40-1	Inorganic Chemistry	3	4	90-1	Physical Training	2	0
90-1	Physical Training	2	0				

043-1	*Descriptive Geometry	20	10
061-1	*Economics and Sociology	5	10
90-1	*Physical Training	2	0

SECOND YEAR

	FALL TERM	Hours per week Ex.	Prep.		SPRING TERM	Hours per week Ex.	Prep.
023-1	Calculus	4	6	023-2	Calculus	3	6
031-2	Physics Laboratory	2	2	032-2	Physics Laboratory	2	2
032-1	Light	2	3	032-3	Heat	3	4½
042-3	Machine Drawing	6	0	033-1	Precision of Measurements	1	1
044-2	Mechanism	4	4	044-3	Mechanism	6	6
21-1	Applied Mechanics	3	6	21-1	Applied Mechanics	3	4½
30-1	Elem. of Electricity	2	2	30-1	Elem. of Electricity	2	2
90-1	Physical Training	2	0	90-1	Physical Training	2	0

042-4	*Machine Drawing	30	0
062-1	*Government	5	10
90-1	*Physical Training	2	0

THIRD YEAR

	FALL TERM	Hours per week Ex.	Prep.		SPRING TERM	Hours per week Ex.	Prep.
051-1	Geology	2	2	16-1	Materials	2	4
21-2	Strength of Materials	3	6	21-2	Strength of Materials	3	6
22-1	Graphical Analysis	5	2	22-2	Elem. Machine Design	6	2
23-1	Heat Engineering	3	6	23-1	Heat Engineering	3	6
24-3	Power Plant Equipment	2	4	30-3	Applied Electricity	2	4
30-3	Applied Electricity	2	4	30-4	Applied Elec. Lab.	3	3
30-4	Applied Elec. Lab.	3	3	50-1	Engineering Conference	1	0
50-1	Engineering Conference	1	0	90-1	Physical Training	2	0
90-1	Physical Training	2	0				

063-1	*History of Science	5	10
11-5	*Surveying	5	0
13-1	*Hydraulics	10	20
90-1	*Physical Training	2	0

FOURTH YEAR

	FALL TERM	Hours per week Ex.	Prep.		SPRING TERM	Hours per week Ex.	Prep.
13-2	Hydraulic Motors	2	4	15-1	Concrete	2	4
15-1	Concrete	2	4	15-2	Concrete Design	3	0
15-2	Concrete Design	3	0	22-3	Machine Design	6	4
22-3	Machine Design	6	2	24-5	Journals and Reports	1	3
23-2	Engineering Laboratory	2	2	24-6	St'd Eng. Prod. and Proc.	2	4
23-5	Heat Engineering	2	4	25-1	Industrial Plants	4	4
24-4	Journals and Reports	1	3	50-1	Engineering Conference	1	0
25-1	Industrial Plants	3	5	52-1	Thesis	1	8
50-1	Engineering Conference	1	0	90-1	Physical Training	2	0
52-1	Thesis	1	3				
90-1	Physical Training	2	0				

*Summer Term: three weeks

ELECTRICAL ENGINEERING

Probably none of the branches of scientific knowledge has been so markedly modified during the past decade as that relating to Electricity, nor has any other exerted such a profound influence upon the scientific thought of the period. A science, like a planet, grows in the main by a process of infinitesimal accretion. Its theory is built like a cathedral through the addition by many builders of many different elements, and this is pre-eminently true of Electricity. It is absolutely essential that the Electrical Engineer who hopes to make a success of his work should be able to grasp readily and absorb effectively the meaning and content of the many scientific memoirs recording the results of research bearing upon and directly influencing his chosen branch of Engineering.

He must have a thorough appreciation of physical theory, a clear understanding of chemical principles, and a broad working knowledge of mathematics. It is essential that each student planning to take this course should realize the fundamental necessity of obtaining a solid grounding in these three subjects upon which the success of his future work will definitely hinge, nor can he be too strongly urged to include Physics in his high school preparatory course if he hopes to avoid difficulty in the earlier years.

It is not the purpose of the course to attempt the impossible in aiming to turn out electrical engineers, fully trained in all the branches of the science, especially as it is becoming daily more differentiated and specialized. The course is designed rather to lay a broad and secure foundation for future progress along the lines of activity which may particularly appeal to each individual student and give him a good working knowledge of the essential principles which underlie each of the more specialized branches of professional work.

Parallel with the theoretical work, runs a carefully planned course of laboratory instruction which is intended to develop the student's power of accurate observation, of planning work and methods of procedure for himself with due regard to saving of time and labor and precision of the results attained.

For more detailed information the reader is referred to the paragraphs descriptive of the several courses as found in the Synopsis of Courses below.

III. ELECTRICAL ENGINEERING

FIRST YEAR

FALL TERM	Hours per week Ex.	Prep.	SPRING TERM	Hours per week Ex.	Prep.
010-1 English	2	4	010-1 English	2	4
021-1 Trigonometry	4	6	022-1 Analytic Geometry	4	6
030-1 Physics Laboratory	2	2	030-1 Physics Laboratory	2	2
031-1 Physics	4	6	031-1 Physics	4	6
041-1 Mechanical Drawing	5	0	041-3 Mechanical Drawing	9	0
31-1 Elem. of Elec. Engineering	2	3	32-1 Electrical Engineering I	2	3
40-1 Inorganic Chemistry	3	4	32-2 Elec. Eng. Lab. I	3	0
90-1 Physical Training	2	0	90-1 Physical Training	2	0

043-1 *Descriptive Geometry	20	10
061-1 *Economics and Sociology	5	10
90-1 *Physical Training	2	0

SECOND YEAR

FALL TERM	Hours per week Ex.	Prep.	SPRING TERM	Hours per week Ex.	Prep.
023-1 Calculus	4	6	023-2 Calculus	3	6
031-2 Physics Laboratory	2	2	032-2 Physics Laboratory	2	2
032-1 Light	2	3	032-3 Heat	3	4½
042-3 Machine Drawing	6	0	033-1 Precision of Measurements	1	1
21-1 Applied Mechanics	3	6	21-1 Applied Mechanics	3	4½
32-3 Electrical Eng. II	3	5	32-4 Elec. Eng. Lab. II	3	3
32-4 Elec. Eng. Lab. II	3	3	32-5 Electrical Eng. III	4	8
90-1 Physical Training	2	0	90-1 Physical Training	2	0

044-1 *Mechanism	15	10
062-1 *Government	5	10
90-1 *Physical Training	2	0

THIRD YEAR

FALL TERM	Hours per week Ex.	Prep.	SPRING TERM	Hours per week Ex.	Prep.
21-3 Strength of Materials	3	6	16-1 Materials	2	4
23-1 Heat Engineering	3	6	23-1 Heat Engineering	3	6
32-6 Elec. Eng. Lab. III	6	3	32-6 Elec. Eng. Lab. III	6	3
32-7 Electrical Eng. IV	4	6	32-7 Electrical Eng. IV	4	6
33-1 Elec. Measurements	2	3	33-1 Elec. Measurements	2	3
33-2 Elec. Measurements Lab.	3	2	33-2 Elec. Measurements Lab.	3	2
50-1 Engineering Conference	1	0	50-1 Engineering Conference	1	0
90-1 Physical Training	2	0	90-1 Physical Training	2	0

063-1 *History of Science	5	10
11-5 *Surveying	5	0
13-1 *Hydraulics	10	20
90-1 *Physical Training	2	0

FOURTH YEAR

FALL TERM	Hours per week Ex.	Prep.	SPRING TERM	Hours per week Ex.	Prep.
13-2 Hydraulic Motors	2	4	24-6 St'd Eng. Prod. and Proc.	2	4
23-2 Engineering Laboratory	2	2	32-8 Elec. Eng. Lab. IV	6	3
32-8 Elec. Eng. Lab. IV	6	3	32-9 Elec. Engineering V	4	8
32-9 Elec. Eng. V	4	8	34-1 Elec. Eng. VI	4	6
34-1 Elec. Eng. VI	4	6	35-1 Advanced Electricity	2	3
35-1 Advanced Electricity	2	3	50-1 Engineering Conference	1	0
50-1 Engineering Conference	1	0	53-1 Thesis	1	6
53-1 Thesis	1	3	90-1 Physical Training	2	0
90-1 Physical Training	2	0			

*Summer Term: three weeks

CHEMICAL ENGINEERING

All manufacturing industries are chemical to a greater or less degree, and for their successful prosecution the chemical engineer is an essential factor. Owing to the keen competition among commercial nations and the great development of chemical industries in America during recent years, the chemist must face bigger problems and larger responsibilities for the proper utilization and conservation of our resources. For these reasons, the course in Chemical Engineering has for its purpose the training of students competent to take responsible places in the operation of industries based on chemical principles. During their course the students are employed in chemical industries where they acquire a knowledge of the commercial side of the industry to supplement their class room and laboratory training. The class work includes training in Inorganic, Analytical, Organic, and Physical Chemistry, and Industrial and Chemical Engineering, which is accompanied by appropriate laboratory work.

In addition to the foregoing subjects, the student is given a good knowledge of mechanical and electrical subjects, such as Drawing, Mechanism, Applied Mechanics, Applied Electricity, etc., which are given so that they have special bearing on the work of the Course.

IV. CHEMICAL ENGINEERING

FIRST YEAR

FALL TERM	Hours per week		SPRING TERM	Hours per week	
	Ex.	Prep.		Ex.	Prep.
010-1 English	2	4	010-1 English	2	4
021-1 Trigonometry	4	6	022-1 Analytic Geometry	4	6
030-1 Physics Laboratory	2	2	030-1 Physics Laboratory	2	2
031-1 Physics	4	6	031-1 Physics	4	6
041-1 Mechanical Drawing	5	0	041-2 Mechanical Drawing	4	0
41-1 Inorganic Chemistry	4	4	41-1 Inorganic Chemistry	4	4
41-2 Inorganic Chem. Lab.	5	0	41-2 Inorganic Chem. Lab.	5	0
90-1 Physical Training	2	0	90-1 Physical Training	2	0

043-1 *Descriptive Geometry	20	10
061-1 *Economics and Sociology	5	10
90-1 *Physical Training	2	0

SECOND YEAR

FALL TERM	Hours per week		SPRING TERM	Hours per week	
	Ex.	Prep.		Ex.	Prep.
023-1 Calculus	4	6	023-2 Calculus	3	6
031-2 Physics Laboratory	2	2	032-2 Physics Laboratory	2	2
032-1 Light	2	3	032-3 Heat	3	4½
042-1 Machine Drawing	3	0	042-2 Machine Drawing	3	0
21-1 Applied Mechanics	3	6	21-1 Applied Mechanics	3	4½
30-1 Elem. of Electricity	2	2	30-1 Elem. of Electricity	2	2
42-1 Qualitative Analysis	2	4	42-1 Qualitative Analysis	2	4
42-2 Qualitative Anal. Lab.	5	0	42-2 Qualitative Anal. Lab.	5	0
90-1 Physical Training	2	0	90-1 Physical Training	2	0

044-1 *Mechanism	15	10
062-1 *Government	5	10
90-1 *Physical Training	2	0

THIRD YEAR

FALL TERM	Hours per week		SPRING TERM	Hours per week	
	Ex.	Prep.		Ex.	Prep.
21-3 Strength of Materials	3	6	23-3 Heat Engineering	3	6
30-3 Applied Electricity	2	4	30-3 Applied Electricity	2	4
30-4 Applied Elec. Lab.	3	3	30-4 Applied Elec. Lab.	3	3
43-1 Quantitative Analysis	2	4	44-1 Technical Analysis	2	4
43-2 Quantitative Anal. Lab.	5	0	44-2 Technical Anal. Lab.	5	0
45-1 Organic Chemistry I	3	6	45-1 Organic Chemistry I	3	6
45-2 Organic Chem. I Lab.	5	0	45-2 Organic Chem. I Lab.	5	0
50-1 Engineering Conference	1	0	50-1 Engineering Conference	1	0
90-1 Physical Training	2	0	90-1 Physical Training	2	0

063-1 *History of Science	5	10
13-1 *Hydraulics	10	20
90-1 *Physical Training	2	0

FOURTH YEAR

FALL TERM	Hours per week		SPRING TERM	Hours per week	
	Ex.	Prep.		Ex.	Prep.
45-3 Organic Chemistry II	2	4	45-3 Organic Chemistry II	2	4
45-4 Organic Chem. II Lab.	5	0	45-4 Organic Chem. II Lab.	5	0
46-1 Chemical Engineering	2	4	46-1 Chemical Engineering	2	4
47-1 Industrial Chemistry	3	6	47-1 Industrial Chemistry	3	6
47-2 Industrial Chem. Lab.	5	0	47-2 Industrial Chem. Lab.	5	0
48-1 Physical Chemistry	2	4	48-1 Physical Chemistry	2	4
48-2 Physical Chem. Lab.	3	0	50-1 Engineering Conference	1	0
50-1 Engineering Conference	1	0	54-1 Thesis	1	6
54-1 Thesis	1	3	90-1 Physical Training	2	0
90-1 Physical Training	2	0			

*Summer Term: three weeks

SUBJECTS OF INSTRUCTION

Instruction is given by lectures and recitations, and by practical exercises in the field, in the laboratories, and in the drawing rooms. A great value is set upon the educational effect of these exercises, and they form the foundation of each of the four courses. Text-books are used in many subjects, but not in all. In many branches the instruction given differs widely from available text-books; and in most of such cases notes on the lectures and laboratory work are issued and furnished to the students. Besides oral examinations in connection with the ordinary exercises, written examinations are held from time to time.

In the following pages will be found a more or less detailed statement of the scope, as well as the method of instruction, of the subjects offered in the various courses. The subjects are classified, so far as possible, related studies being arranged in sequence. The subjects are numbered, for convenience of reference in consulting the various Course Schedules. A complete table of the Subjects of Instruction will be found at the end of the book.

The requisites for preparation include not only the subjects specified by number, but also those required as a preparation for them. The reason for this is in order that to carry on properly the more advanced subjects, the student must have become proficient in all subjects necessary for a clear comprehension of the last subject. Some studies, specified as being required in preparation, may be taken simultaneously, and must be completed before starting on more advanced work.

By careful consideration of the Course Schedules, in connection with the following Synopsis of Courses, the applicant for a special course may select, for the earlier part of that course, such subjects as will enable him to pursue later those more advanced subjects which he may particularly desire. Applications for exception from the required preparation, as stated in connection with each subject described below, will be passed on by the Faculty.

The topics included in the list which follows are subject to change at any time by action of the School authorities.

SYNOPSIS OF COURSES

In the following synopsis under each subject, "Courses" refers to the courses in which that particular subject is required. The year and term refer to the time when the subject is ordinarily taken under the regular schedule, the "first term" referring to the Fall Term, the "second term" referring to the Spring Term, and "both terms" referring to the Fall and Spring Terms. "Preparation" gives the course or courses by number which the student must have taken before he can be permitted to take the course under discussion. In some cases the courses can be taken concurrently. The number of hours refers to the hours of class room work and does not include the hours of additional outside preparation.

010-1. English

Courses: I, II, III, IV	*Preparation: — —*
First year, both terms	*Two hours per week*

English Composition: An elementary course especially adapted to the needs of men who expect to follow the engineering profession. Watt's "The Composition of Technical Papers" forms the basis of the course. The work consists of lectures, recitations, class discussions, weekly themes, tests, reports, and a limited amount of outside reading, particularly in modern scientific journals. Some attention is paid to the history of science and its most significant figures. The material for the themes is entirely drawn from or related to the student's study in the laboratory and experience in his Engineering Practice with the co-operating firm.

021-1 Trigonometry

Courses: I, II, III, IV	*Preparation: — —*
First year, first term	*Four hours per week*

The main part of the course is devoted to the study of Plane Trigonometry, including circular measure, co-ordinates, trigonometric ratios, solution of the right and oblique triangles, law of sines, law of cosines, and law of tangents, goniometry, and the application of Trigonometry to problems in Physics and Engineering.

The student is also given considerable practice in the use of logarithms as applied to exponential equations, variation, and other calculations occurring in Engineering Practice.

022-1 Analytic Geometry

Courses: I, II, III, IV *Preparation: 021-1*
First year, second term *Four hours per week*

Plane Analytic Geometry as a preparation for Calculus. The subjects discussed include the straight line, the conics, and loci problems. The student learns the methods of plotting curves, both in rectangular and polar co-ordinates, and of obtaining properties of curves from their equations. The course also includes the plotting of trigonometric, logarithmic, and exponential functions.

023-1 Calculus

Courses: I, II, III, IV *Preparation: 022-1*
Second year, first term *Four hours per week*

The study of Differential and Integral Calculus, rate of increase, differentiation of algebraic, trigonometric, exponential, and logarithmic functions; problems in maxima and minima by differentiation with practical applications; integration, definite integrals, calculation of areas, mean value, and center of gravity.

023-2 Calculus

Courses: I, II, III, IV *Preparation: 023-1*
Second year, second term *Three hours per week*

A continuation of Course 023-1. The course covers the calculation of volumes, moments of inertia, double and triple integrals in finding areas and volumes, use of integral tables, and the application of calculus to problems in Engineering.

030-1 Physics Laboratory

Courses: I, II, III, IV *Preparation: ——*
First year, both terms *Two hours per week*

A series of twenty-five experiments of high school grade to be worked by students whose notebooks in Physics Laboratory are not accepted as fulfilling the requirements of a complete high school course in Physics Laboratory. The course thus gives these students a better preparation to undertake the work in Courses 031-2 and 032-2.

SYNOPSIS OF COURSES

031-1 Physics

Courses: I, II, III, IV	*Preparation: ——*
First year, both terms	*Four hours per week*

A study of general mechanics, statics, and dynamics. The subjects studied are: Equilibrium of bodies acted upon by parallel forces, equilibrium of bodies acted upon by concurrent forces, uniform velocity; uniformly accelerated motion; motion of bodies projected vertically, horizontally and obliquely, Atwood's machine, inclined plane, friction, energy, work, horsepower, angular velocity and acceleration, kinetic energy of rotation, centrifugal force, fluid pressure, hydrometers, and Archimides' principle. It is the purpose of the course to lay a thorough foundation for subsequent study of experimental and technical physics. Hence it is planned with immediate reference to familiarize the pupil with the fundamental principles of the science.

031-2 Physics Laboratory

Courses: I, II, III, IV	*Preparation: 030-1, 031-1*
Second year, first term	*Two hours per week*

Experiments on Mechanics performed by each student, supplementing the lecture and class room work in Physics 031-1. The experiments include the use of verniers, micrometers, and spherometers, calculation of true weights, determination of specific gravities of solids by various methods, and motion on an inclined plane.

032-1 Light

Courses: I, II, III, IV	*Preparation: 031-1*
Second year, first term	*Two hours per week*

The study of Light, including mirrors, refraction, lenses, optical instruments, dispersion, interference, diffraction, and polarization of light.

032-2 Physics Laboratory

Courses: I, II, III, IV	*Preparation: 032-1, 032-3 taken concurrently*
Second year, second term	*Two hours per week*

A series of experiments on Light and Heat to supplement the work done in Physics 032-1 and Physics 032-3. The experiments on Light include the determination of the index of refraction of a lens, the position of images in combinations of lenses, and the uses of the Spectrometer and Spectroscope. The experiments on Heat include the calibration of a thermometer, determination of the temperature of a mixture, area of an indicator diagram by the planimeter, the relations between the pressure and boiling point of water, and the use of the air thermometer.

032-3 Heat

Courses: I, II, III, IV	*Preparation: 031-1*
Second year, second term	*Three hours per week*

The topics studied are: thermometry, expansion of solids, liquids and gases, calorimetry, change of state including latent heat of fusion and vaporization, conduction and radiation, the mechanical equivalent of heat, efficiency of engines, and Carnot's cycle.

033-1 Precision of Measurements

Courses: II, III	*Preparation: 023-1*
Second year, second term	*One hour per week*

A thorough discussion of the fundamentals of the Theory of Measurements, including a study of the Sources of Error, the Best Representative Value of the result of a series of measurements, the determination of the several Precision Measures of the result of one's work; the converse problem of how best to proceed in order to reach a given degree of precision, and a thorough consideration of the proper use of Significant Figures.

041-1 Mechanical Drawing

Courses: I, II, III, IV	*Preparation: — —*
First year, first term	*Five hours per week*

An elementary course in the fundamentals of mechanical drawing, embracing exercises in the proper use and care of drafting tools, a thorough study of the principles of orthographic projection with special attention to their application to engineering drawing, lettering, dimensioning, and tracing. The work is planned on the assumption that the student understands simple geometrical constructions as studied in plane geometry.

041-2 Mechanical Drawing

Courses: I, IV — *Preparation: 041-1*
First year, second term — *Four hours per week*

A continuation of Course 041-1, comprising problems in the development of solids, examples in isometric drawing, and perspective.

041-3 Mechanical Drawing

Courses: II, III — *Preparation: 041-1*
First year, second term — *Nine hours per week*

A continuation of Course 041-1, comprising problems in the development of solids, examples in isometric drawing, perspective, screw threads, bolts and nuts, and simple machine parts.

042-1 Machine Drawing

Courses: I, IV — *Preparation: 041-2*
Second year, first term — *Three hours per week*

An elementary machine drawing course comprising a thorough study of screws, bolts and nuts, drafting conventions, and sections.

042-2 Machine Drawing

Courses: I, IV — *Preparation: 042-1*
Second year, second term — *Three hours per week*

Detailing and assembling of simple machines from sketches and drawings.

042-3 Machine Drawing

Courses: II, III — *Preparation: 041-3*
Second year, first term — *Six hours per week*

Reading and translating drawings. Detailed and assembly drawings of machine parts and simple machines are made from freehand sketches and other data, but nothing in the nature of a copy is permitted. The course is designed to give a thorough foundation for the study of machine design.

042-4 Machine Drawing

Course: II	*Preparation: 042-3*
Second year, summer term	*Thirty hours per week*

The work here is conducted according to the methods of progressive draftsmen, great emphasis being laid on completeness and accuracy in the use of drawing as a language. A complete machine, such as a lathe, automobile engine, or a simple steam engine is studied by making freehand detail sketches from the individual pieces and afterward mechanically drawing the details from the freehand sketches, and the assembly drawing from the finished details.

043-1 Descriptive Geometry

Courses: I, II, III, IV	*Preparation: 041-1*
First year, summer term	*Twenty hours per week*

A study of the principles of descriptive geometry and their application to engineering by the solution of many problems in which theory and practice are closely correlated. Classroom exercises are devoted entirely to drafting board problems, preparation for which is obtained by the outside study of textbook references and practice problems.

044-1 Mechanism

Courses: I, III, IV	*Preparation: 041-2 or 041-3*
Second year, summer term	*Fifteen hours per week*

An introductory course conducted mainly by graphical methods and dealing with gear trains, velocity ratios, paths of mechanical movements and their application to velocity diagrams, and cams.

044-2 Mechanism

Course: II	*Preparation: 041-3*
Second year, first term	*Four hours per week*

An introductory course conducted mainly by graphical methods and dealing with gear trains, velocity ratios, paths of mechanical movements and their application to velocity diagrams, quick-return mechanisms, and cams. The first part of the course is identical with Course 044-1.

044-3 Mechanism

Course: II *Preparation: 044-2*
Second year, second term *Six hours per week*

A continuation of Course 044-2, embracing the careful study of gear-tooth outlines, and an introduction to the subject of valve gear diagrams.

051-1 Geology

Courses: I, II *Preparation: ——*
Third year, first term *Two hours per week*

Earth movements and the various terrestrial applications of solar energy. The more important geological processes, erosion, sedimentation, deformation, and eruption are taken up and discussed. The latter part of the course is devoted to lectures on the broader structural features of the earth's crust and the application of the principles of structural geology to practical engineering problems.

061-1 Economics

Courses: I, II, III, IV *Preparation: ——*
First year, summer term *Five hours per week*

A rapid survey of the elementary principles of economics, such as those of wealth, labor, capital, value, price, and so forth. The consideration of money and the mechanism of exchange, particular attention being paid to banking and its relation to the finances of corporations. In studying the distribution of wealth, considerable attention is paid to the questions of wages and value, and their relation to business profits.

If time permits, a brief study will be made of trade unions, labor legislation, and public ownership and control.

062-1 Government

Courses: I, II, III, IV *Preparation: ——*
Second year, summer term *Five hours per week*

The theory and practice of government in the existing forms of national organization in the United States and Great Britain. The relations between the executive, the legislature, and the judiciary will form the basis of investigation. In the lectures additional illustrative material will be taken from France, the former German Empire, and the German Commonwealth. It is hoped that the men will look on the study of government, not as academic but as practical, through constant reference to contemporary men and affairs.

063-1 History of Science

Courses: I, II, III, IV	*Preparation: ——*
Third year, summer term	*Five hours per week*

The aim is to give a broad view of the growth of science, extend the range of the students' interests, and encourage discriminating scientific reading. Considerable collateral reading is required of the students.

064-1 German

Course: IV	*Preparation: ——*
Fourth year, both terms	*Two hours per week*

All students in the Chemical Engineering Course are required to show before graduation a sufficient knowledge of the German language to be able to read technical books and scientific articles written in the German language. For students who have not obtained this knowledge before entering college, this course will offer a study of grammatical forms, syntax, and vocabulary through composition exercises and rapid reading. The entire purpose is to give the student a knowledge of German grammar with a working vocabulary of scientific terms.

11-1 Surveying

Course: I	*Preparation: ——*
First year, both terms	*Two hours per week*

Lectures, recitations, and problem work in which the following subjects are considered: the chain, tape, compass, transit and level, methods of making and computing both closed and random traverses, location of buildings and points, surveying for deeds, city surveying, U. S. system of public land surveying, differential and profile levelling, theory and use of contours and contour maps, computation of earthwork, stadia methods and various special problems.

11-2 Surveying, Field & Practice

Course: I
First year, both terms
Preparation: 11-1
taken concurrently
Five hours per week

Two afternoons per week throughout the year are devoted to preliminary practice with the standard surveying instruments. The work depends upon, and is closely allied to, the theoretical work in Course 11-1. The student first practises chaining and taping, then learns to use the compass for reading magnetic bearings. Next he runs a closed compass and tape traverse. Then follows practice with the transit, level and tape. The last problem in the Fall is a large transit and tape closed traverse. This traverse is balanced, plotted, and completed as a map during the winter. Work is also done on contour maps and problems. In the spring, more work is taken up in differential and profile leveling, locating of contours, transit and stadia methods, and various special problems such as layout of line and grade for a sewer or a building, and cross sectioning a borrow pit.

11-3 Surveying

Course: I
Second year, first term
Preparation: 11-1, 11-2
Two hours per week

The student is taught the theory of plane and geodetic triangulation, the theory of the sextant, the theory of plane table topographical surveying, the adjustments of instruments, and the methods of stellar observation for the determination of azimuth. Surveying problems in review of the elementary work are assigned to make sure that the student has a comprehensive and accurate knowledge of the art.

11-4 Surveying, Field and Practice

Course: I
Second year, first term
Preparation: 11-3
taken concurrently
Five hours per week

The work follows closely and is dependent upon the theoretical work of Course 11-3. Actual practice is given in triangulation measurement of base line, work with the sextant, plane table, field adjustments of transit and level, and an observation on polaris for latitude and azimuth.

11-5 Surveying

Courses: II, III	*Preparation: 021-1*
Third year, summer term	*Five hours per week*

Surveying field work during the Summer Term is designed to give the students instruction in the essential principles of surveying. It includes practice in the use of the transit and level.

12-1 Railroad Surveying

Course: I	*Preparation: 11-3, 11-4*
Second year, second term	*Two hours per week*

The course covers:

(1) The principles and application of simple, compound, reverse, and transition curves to railroad and highway location.

(2) The economics of railroad location, including the consideration of maximum grades, rise and fall, earthwork, traffic, etc.

12-2 Railroad Surveying, Field and Practice

Course: I	*Preparation: 12-1 taken concurrently*
Second year, second term	*Five hours per week*

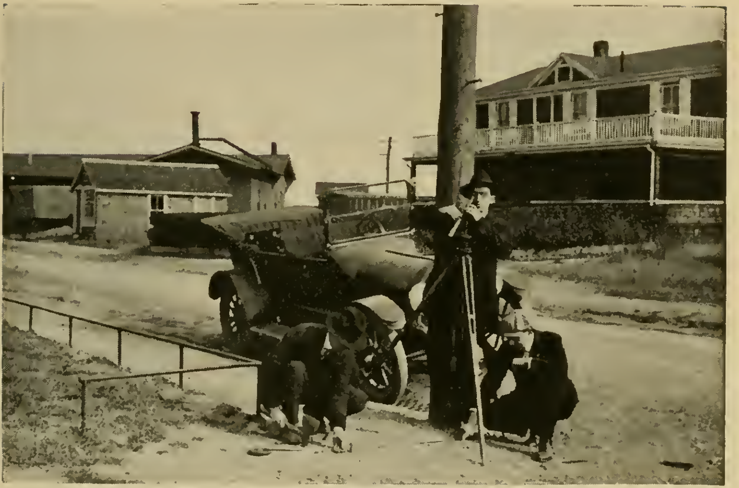
The work follows closely the theories of course 12-1. It includes the layout in the field of various railroad curves; drafting room problems on location of railroads and highways from existing contour maps; and the actual preliminary layout by reconnaissance and plane table of a line of railroad about a mile long.

12-3 Railroad Engineering

Course: I	*Preparation: 12-1, 12-2*
Third year, first term	*Three hours per week*

A continuation of course 12-1. The student fixes the exact location of the railroad line started previously, from further considerations of earthwork, and haul, as determined by a mass diagram. Various methods of computing earthwork are considered, and a brief study is made of railroad operation including train resistances, locomotive types, airbrakes, etc.

Civil Engineering Students



Locating Edge Stones
Whitman and Howard, Civil Engineers

Making a Stadia Survey
Class in Surveying Fieldwork

Chemical Engineering Students

Testing Milk
Boston Bio-Chemical Laboratory

Class in Quantitative Analysis
Chemical Laboratory

12-4 Railroad Engineering, Field and Practice

Course: I	*Preparation: 12-3 taken concurrently*
Third year, first term	*Five hours per week*

Field work in connection with course 12-3. The final location of the railroad line is plotted, including vertical, horizontal, and transition curves. A mass diagram is drawn for the earth work, and final computation of cost is made. Part of the line is slope staked.

13-1 Hydraulics

Courses: I, II, III, IV	*Preparation: 031-1, 023-2, 21-1*
Third year, summer term	*Ten hours per week*

A study of both Hydrostatics and Hydrodynamics. The subjects considered are: the pressure on submerged areas together with their points of application; the laws governing the flow of fluids through orifices, short tubes, nozzles, weirs, pipe lines, and open channels; and the dynamic pressure and work of water flowing over curved surfaces. A short study of stream flow measurements is also made.

13-2 Hydraulic Motors

Courses: II, III	*Preparation: 13-1*
Fourth year, first term	*Two hours per week*

Principles underlying the design of hydraulic turbines and motors. A study is also made of stream flow, storage, and other details relating to hydraulic installations.

14-1 Theory of Structures

Course: I	*Preparation: 21-2*
Third year, second term	*Three hours per week*

Class and drawing-room work in studying the loads, reactions, shears, and moments acting upon structures of various kinds, such as roofs and bridges. A thorough study is also made of the various functions of the influence line; the methods used to determine the position of moving loads to produce maximum shears and moments on bridges; and the design of beams.

14-2 Structural Drawing

Course: I — *Preparation: 21-2, 041-1*
Third year, second term — *Three hours per week*

Drawing of standard sections of structural steel shapes and connections, and the preparation of drawings representing elementary structural details. The course is designed to familiarize the student with the designing and drawing of riveted connections, and the dimensioning and detailing of structural parts.

14-3 Engineering Structures

Course: I — *Preparation: 14-1, 14-2*
Fourth year, both terms — *Six hours per week*

The computation and design of structures of wood, steel, and masonry by analytical and graphical methods. The subjects considered are: plate girders, roof and bridge trusses of various types; such as simple trusses, bridge trusses with secondary web systems,—including Baltimore and Pettit trusses,—and trusses with multiple web systems, lateral and portal bracing, transvers bents, viaduct towers, and cantilever bridges. A study is also made of the design of columns, tension members, pin and riveted truss joints, trestles of wood and steel, masonry dams, retaining walls, and arches. The student is also given training in the use of the standard handbooks in structural work. The object is to train the student thoroughly in the application of mechanics to the design of structure.

14-4 Structural Design

Course: I — *Preparation: 14-3 taken concurrently*
Fourth year, both terms — *Six hours per week*

Designing and detailing of structures, using the theory learned in Course 14-3. Complete working drawings are ordinarily made of a single track Plate Girder railroad bridge, a riveted truss highway bridge, and a small concrete arch.

15-1 Concrete

Courses: I, II — *Preparation: 21-2*
Fourth year, both terms — *Two hours per week*

Concrete as a material of construction is studied in detail, and the principles of reinforced concrete design are learned.

Computations and designs are made of flat slabs, T beams, columns, footings, retaining walls, and arches.

15-2 Concrete Design

Courses: I, II	*Preparation: 15-1 taken concurrently*
Fourth year, both terms	*Three hours per week*

Detailing and making of complete working drawings of the concrete structures designed in Course 15-1.

16-1 Materials

Courses: I, II, III**	*Preparations 21-2 or 21-3*
Fourth year, first term	*Two hours per week*

Methods of testing and the strength of various materials used by the engineer. A detailed study is also made of the methods of manufacturing, properties, and uses of materials used in engineering work; such as lime, cement, concrete, brick, wood, stone, iron, and steel. Each student is required to prepare, and present to the class, a paper on some subject of especial importance, which is assigned by the instructor.

*Third year, second term.

16-2 Testing Materials Laboratory

Course: I	*Preparation: 21-2*
Fourth year, second term	*Two hours per week*

The work is done by the students and includes tests to determine the elongation, reduction of areas, modulus of elasticity, yield point, ultimate compressive strength of metals; such as steel, cast iron, copper and brass; tensile and compressive tests on timber and concrete; tests to determine the deflection, modulus of elasticity, elastic limit, and ultimate transverse strength of steel and wooden beams, subject to transverse loads. Tests are also made on cement mortars to determine the strength of cubes and briquettes at different ages.

16-3 Foundations

Course: I	*Preparation: 14-1, 16-1 taken concurrently*
Fourth year, first term	*Two hours per week*

The subjects treated are pile formations—including those of timber and concrete—sheet piles, coffer-dams, box and open caissons, pneumatic caissons, pier foundations in open wells, bridge piers, and abutments.

17-1 Highway Engineering

Course: I — *Preparation: 11-2*
Fourth year, second term — *Two hours per week*

The location, construction, and maintenance of roads, street design, and street drainage; sidewalks; pavement foundations; and the construction, cost and maintenance of the various kinds of roads and pavements, including asphalt, brick, stone-block, wood-block, macadam (both water bound and bituminous), bituminous concrete, hydraulic cement concrete, gravel, and earth. Special consideration is given to the modern concrete road.

21-1 Applied Mechanics

Courses: I, II, III, IV — *Preparation: 022-1, 031-1*
Second year, both terms — *Three hours per week*

The topics covered are: statics, forces in equilibrium, parallel forces, stresses in frames, forces in three dimensions, center of gravity, moment of inertia, radius of gyration; kinetics, centrifugal force, translation and rotation combined, percussion, friction of belting. The student is required to solve a large number of problems, and to pass examinations at frequent intervals. It is felt that the student should retain a considerable body of facts about this subject in his mind after graduation; therefore a thorough groundwork of theory is covered.

21-2 Strength of Materials

Courses: I, II — *Preparation: 023-2, 21-1*
Third year, both terms — *Three hours per week*

The topics covered are: the theory and experimental basis of tension, compression, shear, resilience, modulus of elasticity, bending stresses, the design of beams, moment and shear diagrams, use of tables of standard steel shapes, longitudinal shear and deflection in beams, combined stresses, beams with three supports, columns, the strength of shafts and springs, and principal stresses. The basis of the course is a continuous series of practical problems.

21-3 Strength of Materials

Courses: III, IV — *Preparation: 023-2, 21-1*
Third year, first term — *Three hours per week*

Similar to course 21-2 but more limited in time. The topics omitted are columns, principal stresses, and longitudinal shear and deflection in beams.

22-1 Graphical Analysis

Course: II — *Preparation: 042-4, 044-3, 21-1*
Third year, first term — *Five hours per week*

Many problems which may readily be solved by graphical methods are included here. Valve gear problems are solved by the use of the various diagrams. The kinematical features of various machines are studied by means of velocity and acceleration diagrams.

22-2 Elementary Machine Design

Course: II — *Preparation: 21-2 taken concurrently*
Third year, second term — *Six hours per week*

Simple problems in design embodying the principles studied in the courses in Mechanism 044-2, 044-3, and Strength of Materials, 21-2. The earlier problems are concerned with designs to obtain desired motions, together with the use of some of the simpler machine details such as bolts, keys, pins, etc., while the later problems involve the calculation of simple stresses and the design for strength.

22-3 Machine Design

Course: II — *Preparation: 22-2*
Fourth year, both terms — *Six hours per week*

Practice is given the student in the application of theoretical principles previously studied, and at the same time he becomes familiar with the many practical details which must be considered in design work. The problems taken up in the early part of the course are of a static nature, while the later problems involve dynamical stresses. The design of some type of pressure vessel, such as a tank or a boiler, constitutes the first problem, the stresses for such a design being known with a great degree of certainty, and the materials of construction very reliable. The other problems of the course vary from year to year, but the following are typical of the designs taken up: arbor press, hydraulic flanging clamp, crane, air compressor, punch and shear, stone-crusher, etc.

In each design the constructive details are carefully considered, with special attention to methods of manufacture, provision for wear, lubrication, etc. The work is based on rational rather than empirical methods, the student being required to make all calculations for determining the sizes of the various parts and all necessary working drawings.

23-1 Heat Engineering

Courses: II, III *Preparation: 023-2, 032-3, 21-1*
Third year, both terms *Three hours per week*

The fundamental principles underlying the subject of thermodynamics. A study is made of the following topics: the properties of perfect gases, saturated and super-heated vapors, air and steam cycles, and the flow of fluids through nozzles, and pipe-lines, and the calculations of an air compressor. In the second half-year the principles of thermodynamics are applied to the various parts of the modern steam power plant. This includes a study of boilers, fuels and combustion, flue gas analysis, feed-water heaters, chimneys, steam engines, condensers, cooling towers, gas power, steam turbines, and also the methods of testing power plant equipment.

23-2 Engineering Laboratory

Courses: II, III *Preparation: 13-1, 23-1*
Fourth year, first term *Two hours per week*

Exercises and tests upon the various forms of appliances in use in the power plant, such as:

1. Gauge test and calibration.
2. Slide valve setting.
3. Corliss valve setting.
4. Testing quality of steam by steam calorimeter.
5. Determine flow of steam through an orifice.
6. Steam engine indicator practice.
7. Test of a simple steam engine.
8. Test of a compound steam engine.
9. Study of a steam driven air compressor.
10. Test of a steam driven air compressor.
11. Series of tests on a Pelton water wheel.

23-3 Heat Engineering

Courses: I, IV — *Preparation: 023-2, 032-3, 21-1*
Third year, second term — *Three hours per week*

The subject matter of thermodynamics is presented to the students of civil and chemical engineering to meet their especial needs.

23-5 Heat Engineering

Course: II — *Preparation: 23-1, 24-3*
Fourth year, first term — *Two hours per week*

A continuation of Course 23-1. Among the subjects considered are the compression and absorption systems of refrigeration, Hirn's analysis of steam engine losses, and the theory of vapor mixtures.

24-1 Production Engineering

Course: II — *Preparation: ——*
First year, first term — *Two hours per week*

A descriptive course intended to acquaint the student with the organization, methods, and equipment used in industrial plants engaged in quantity production. For purposes of discussion the plant is divided into its various units: such as general offices, drafting-room, pattern-shop, foundry, machine-shop, erecting shop, testing-room, etc. The mechanical equipment, filing systems, cost-keeping systems, "follow-up" cards, etc., are described, and representative examples are shown.

24-2 Production Engineering

Course: II — *Preparation: 24-1*
First year, second term — *Two hours per week*

A continuation of course 24-1.

24-3 Power Plant Equipment

Course: II — *Preparation: 23-1 taken concurrently*
Third year, first term — *Two hours per week*

Largely a description of the many appliances used in modern power plants. A discussion of boilers and boiler accessories, ash and coal handling systems, the various types of engines—gas engines, and turbines—with their valve gears and governing devices, condensers, feed-water heaters, pumps, etc.

24-4 Journals and Reports

Course: II	*Preparation: 22-2, 23-1*
Fourth year, first term	*One hour per week*

Designed to acquaint the student with general engineering literature and to enable him to read intelligently discussions upon Mechanical Engineering Practice. The student has three hours of collateral reading per week in standard engineering publications, and the material gathered is discussed in class.

24-5 Journals and Reports

Course: II	*Preparation: 22-2, 23-1*
Fourth year, second term	*One hour per week*

Reading and discussion as in Course 24-4, but distinct from it.

24-6 Standard Engineering Products and Processes

Courses: II, III	*Preparation: 16-1*
Fourth year, second term	*Two hours per week*

Intended to familiarize the student with the commercial names and sizes of engineering products: such as, bar and plate stock, shafting, tubing, pipes, valves, bearings and hangars, belts, pulleys, etc. A discussion of such manufacturing processes as extrusion, broaching, press work, electric and oxy-acetylene welding, cold and hot rolling and drawing, etc., is included.

25-1 Industrial Plants

Course: II	*Preparation: 21-2, 23-1, 24-3*
Fourth year, first term	*Three hours per week*
second term	*Four hours per week*

The principles involved in the erection, installation, and management of an industrial plant. A description of the different types of structures, with consideration of such details as foundations, walls, columns, floors, windows, etc., is followed by a discussion of the installation of the power plant and machinery. Principles of illumination, fire-prevention, heating and ventilation, routing of materials, and the organization and management of a plant are taken up. A design problem is given in connection with the course.

30-1 Elements of Electricity

Courses: I, II, IV — *Preparation: 022-1, 031-1*
Second year, both terms — *Two hours per week*

The foundation for subsequent electrical engineering work for students of Civil, Mechanical, and Chemical Engineering. Emphasis is laid on the fundamental principles, and the subject is developed by elaborating these principles through numerical applications. The topics discussed are, briefly: magnets and magnetism, electrical resistance and Ohm's law, electric work and power, series and parallel circuits, electromagnetism, electromagnetic induction, magnetic properties of iron, electrolysis and batteries, alternating currents and voltages, inductance, alternating currents, and inductive circuits, and power in inductive circuits.

30-3 Applied Electricity

Courses: I, II, IV — *Preparation: 30-1*
Third year, both terms — *Two hours per week*

A foundation in fundamental electrical theory and some of its applications so that the student may be able to handle intelligently electrical problems that are likely to come up in connection with his chosen field. The course varies somewhat in content, depending upon the particular branch of engineering which most of the students in the class are studying. In any case, the first term is devoted to a consideration of various direct-current machines and appliances; their characteristics and applications. In the second term alternating-current apparatus is treated in a similar manner.

30-4 Applied Electricity Laboratory

Courses: I, II, IV — *Preparation: 30-3 taken concurrently*
Third year, both terms — *Three hours per week*

The characteristics and operation of direct and alternating current machinery, discussed in Course 30-3. The experiments deal with the following: resistance measurement, speed control direct-current motors; voltage control of generators; voltage regulation of direct-current generators; speed regulation of direct-current motors; brake tests of various types of direct and alternating-current motors; measurement of losses and the calculating of the efficiency of motors and generators; alternating current circuits containing resistance, inductance, and capacitance; determination of the characteristics of transformers; various polyphase connections; regulation of alternators; synchronous motor, rotary converter, and induction motor characteristics. A written report is required on each experiment, and especial care is exercised that such reports be correct in matter and in form.

31-1 Elements of Electrical Engineering

Course: III	*Preparation: — —*
First year, first term	*Two hours per week*

A descriptive discussion of the fundamental principles of electricity, combined with an outline of their application in the art. The principal aim is to familarize the student as soon as possible with those matters with which it is important he should be acquainted, in order that he may from the beginning obtain the most possible from his Engineering Practice.

32-1 Electrical Engineering I

Course: III	*Preparation: 31-1, 40-1*
First year, second term	*Two hours per week*

A study in detail of the electric current, electromotive force and resistance, electrical work and power, electrical circuits, Kirchoff's laws, primary and secondary batteries, magnetism, electromagnetism, electromagnetic induction, self and mutual inductance, electrostatics, energy stored in the electromagnetic and electrostatic field. The practical units of measurement are discussed, as the several quantities to which they apply are successively reached.

32-2 Electrical Laboratory I

Course: III	*Preparation: 32-1 taken concurrently*
First year, second term	*Three hours per week*

Experiments selected and arranged to teach the use of the more common electrical measuring instruments and to illustrate and enforce the principles developed in Course 31-1.

32-3 Electrical Engineering II

Course: III	*Preparation: 022-1, 031-1, 32-1*
Second year, first term	*Three hours per week*

A careful, though more or less descriptive, discussion of the dynamo in general, and its uses both as generator and motor, together with a thorough discussion of the magnetic properties of iron and the magnetic circuit, and a careful consideration of the single energy transient in inductive circuits, followed by a thorough study of the direct current machine—armature windings, armature reactions and their compensation, commutation, generator and motor ratings.

32-4 Electrical Laboratory II

Course: III	*Preparation: 32-3, 32-5 taken concurrently*
Second year, both terms	*Three hours per week*

A carefully selected series of experiments intended to exemplify qualitatively, and in the clearest manner, the principles developed in the parallel lecture courses, 32-3, and 32-5. It includes a series of about twenty experiments, of which the following may be mentioned as illustrative of the type of work:

The starting of a shunt motor, and starting devices.

The speed, field and voltage relations in a separately excited machine.

The heat test of a generator.

The characteristic curves of generators.

The parallel operation of shunt and compound generators.

The three wire balancer set.

The speed and torque curves of the series motor.

Satisfactory completion of fifteen experiments is the minimum acceptable amount of work.

Since the purpose of the course is in part to develop correct methods of work, it is intended that the whole of the preparatory work, as well as the working up of the data obtained, shall be done in the laboratory under supervision of the instructor, so far as necessary.

32-5 Electrical Engineering III

Course: III	*Preparation: 32-3*
Second year, second term	*Four hours per week*

Divided into two parts: first, a discussion of the uses and operation of the machinery discussed in 32-1, illustrative of which may be mentioned: parallel operation, three wire systems and machines, boosters and balancers, special motor applications and control and similar subjects; second, a study of the methods and principles involved in the testing for efficiency and performance of the machinery studied.

Much emphasis is placed upon the working of problems, a special weekly period being set aside for this, and about one hundred problems are worked in the class-room.

32-6 Electrical Laboratory III

Course: III	*Preparation: 32-4, and 32-7 and 33-1 taken concurrently*
Third year, both terms	*Six hours per week*

A series of experiments involving the testing of machines; together with experiments intended to elucidate practically the principles developed in the parallel course on alternating currents, 32-7, and also to train the student in the use of the special types of instruments which he will later use in the laboratory work upon alternating current machinery.

Illustrative experiments are:

Stray power tests, Prony brake tests, retardation tests, pumping back tests, regulation tests, heat runs, analysis of losses, etc.

Study of A-C series and parallel circuits, resonant conditions, effect of frequency change on circuit constants, parallel operation of A-C machines, synchronizing and changing load, power factor measurements, power measurement in polyphase circuits, etc.

As the course progresses, the student is thrown more and more upon his own resources; a desired result is stated to him, and he is left to plan out his own methods, settle upon the apparatus needed, solve his precision requirements, calibrate the instruments, if necessary, and finally turn in a detailed report covering all phases of the work from its inception.

32-7 Electrical Engineering IV

Course: III	*Preparation: 023-2, 032-3, 32-5*
Third year, both terms	*Four hours per week*

Lectures, recitations, and problem work upon the electromagnetic and electrostatic fields, variable, and alternating currents. Among the subjects covered are: solution of linear differential equations of the first and second degree with constant coefficients leading to the general equation of current in any circuit, transients and the establishment of the steady state, consideration of the steady state when the electromotive force follows the sine law, harmonic alternating currents complex quantity, vector representation, topographic representation, symbolic representation. Application of the principles developed to all possible combinations of resistance, inductive and condensive reactances in both single and polyphase circuits. The course is emphatically mathematical, involving the use of both Fourier series and hyperbolic functions, so that thorough comprehension of the preparatory mathematical subjects cannot be too strongly insisted upon. About two hundred problems are worked in class during the year.

32-8 Electrical Laboratory IV

Course: III	*Preparation: 32-7, 32-9 taken concurrently*
Fourth year, both terms	*Six hours per week*

Laboratory course to accompany Course 32-9 in alternating-current machinery. The work includes tests on the heating, efficiency, and determination of the characteristics of the various types of alternating-current machinery, such as transformers, generators, and motors. A detailed preliminary study is made of each assigned experiment, involving the theoretical principles, the method of procedure to obtain the required results, and the way in which the results should be worked up. This is embodied in a preliminary report. The student then does the necessary laboratory work to obtain the required data; and finally works up the whole into a detailed final report. The assistance given by the instructor is reduced to a minimum, the initiative and resourcefulness of the student being depended on to the greatest extent.

32-9 Electrical Engineering V

Course: III *Preparation: 32-7*
Fourth year, both terms *Four hours per week*

A careful, thorough, and detailed discussion of the construction, theory, operating characteristics, and testing of the various types of alternating current machinery. The first half of the course is equally divided between the transformer and the synchronous generator. In the second half of the course synchronous motors, parallel operation of alternators, synchronous converters, polyphase induction motors, the induction generator, single phase induction motors, and commutating alternating-current motors are taken up. One two-hour period a week is spent in the solution of numerical problems.

33-1 Electrical Measurements

Course: III *Preparation: 023-2, 033-1, 32-5*
Third year, both terms *Two hours per week*

A brief discussion of measurement in general and electrical measurements in particular, in which a review of the electrical units and their definitions has a part. Resistance devices, galvanometers, ammeters, and voltmeters are next discussed, the treatment of other instruments being taken up later in connection with their uses. This is followed by a detailed discussion of the methods of measuring the various electrical quantities—resistance, resistivity, conductivity, current, electromotive force, capacitance, inductance, magnetic induction, permeability, hysteresis loss, energy, and power. The student is given a thorough treatment of the construction, theory of operation, method of use, sources of error, etc., of the types of measuring instruments used in commercial work and in the standardizing laboratory of the Supply Company.

33-2 Electrical Measurements Laboratory

Course: III *Preparation: 33-1 taken concurrently*
Third year, both terms *Three hours per week*

A series of experiments emphasizing the principles developed in Course 33-1. The student becomes familiar with the use of the standard apparatus in use in testing laboratories. Particular stress is laid on the correct use of the apparatus, and precision discussions are required throughout.

The experiments cover such matters as the determination of specific resistance, insulation resistance, conductivity, magnetic induction, dielectric constant, and the use of special apparatus: such as the Kelvin bridge, Cary-Foster bridge, Potentiometer, etc.

34-1 Electrical Engineering VI

Course: III	*Preparation: 13-1, 13-2, taken concurrently, 23-1, 32-7, 32-9, taken concurrently*
Fourth year, both terms	*Four hours per week*

A detailed study of the central station, both steam driven and hydroelectric, equally careful attention being given to the engineering and economic details, the influence of the various appliances upon the cost of power being kept constantly in view.

Following this comes a careful study of the high tension transmission line, the potentials used, spacing of conductors, line characteristics, losses, inductive effects upon neighboring circuits, quarterwave transmission, surges, etc.

After this is considered the sub-station and equipment, and then follows a full discussion of distribution systems and the utilization of electrical power, especial attention being given to railway operation, and the matter of out-door and interior illumination. The course closes with a brief discussion of the Public Utility in its relations to the community served.

35-1 Advanced Electricity

Course: III	*Preparation: 32-7*
Fourth year, both terms	*Two hours per week*

The first term: a full descriptive discussion of modern electrical theory. Beginning with the state of electrical science in the time of Franklin, the development of the science is traced through the work of Faraday, Maxwell, Hertz, and Kelvin on the one hand; of Weber, Crookes, J. J. Thomson, Millikan, and others on the other. The subjects of metallic, electrolytic, and gaseous conduction are discussed, together with ionization, the theories of electromagnetic mass, and the electrical constitution of matter.

The second term: the matter of electromagnetic radiation, the propagation of waves in space and along wires, and a detailed discussion of the subject of transients in modern transmission systems, together with the theory of radio transmission of energy.

40-1 Inorganic Chemistry

Courses: I, II, III*	*Preparation: ——*
First year, first term	*Three hours per week*

A course in inorganic chemistry designed to meet the needs of students in non-chemical courses. It includes a brief discussion of the general principles of chemistry as applied to engineering, with the idea of illustrating the applications of chemistry to special lines of engineering work.

*Third year, first term.

41-1 Inorganic Chemistry

Course: IV	*Preparation: ——*
First year, both terms	*Four hours per week*

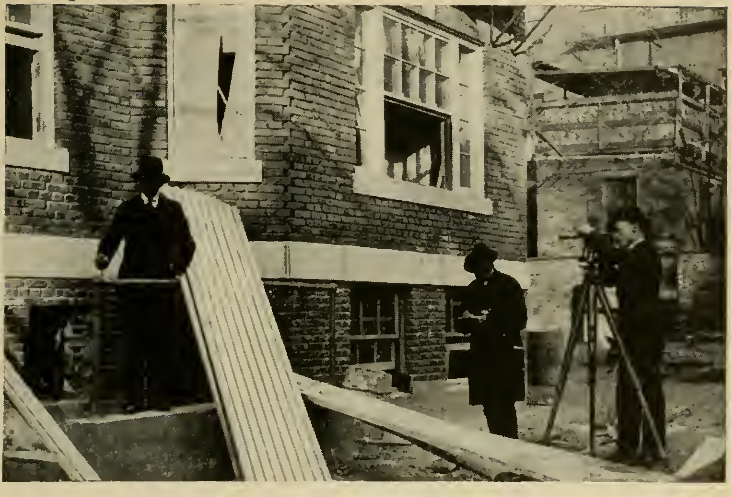
The fundamental principles of the science are taught by means of experimental lectures. Topics of a broad general character are taken up in the first part of the course, in connection with the descriptive chemistry of the non-metallic elements, followed later by more specialized work in connection with the elements. Recitations will include a short written test on the two lectures of the week. Special attention is given to chemical calculations based on practical application.

41-2 Inorganic Chemical Laboratory

Course: IV	*Preparation: 41-1 taken concurrently*
First year, both terms	*Five hours per week*

The object of the course is to cultivate scientific attitude and habit of thought on the part of the student, and to increase his power of acquiring knowledge, whether it be from book, lecture, or from experiment. The experiments are planned to illustrate the topics which have been discussed in the lecture room. Careful manipulations, thoroughness in observation, accuracy in arriving at conclusions are required of each student. In this, as in all subsequent laboratory work, neat and satisfactory notes will be considered an essential part of the work.

Civil Engineering Students

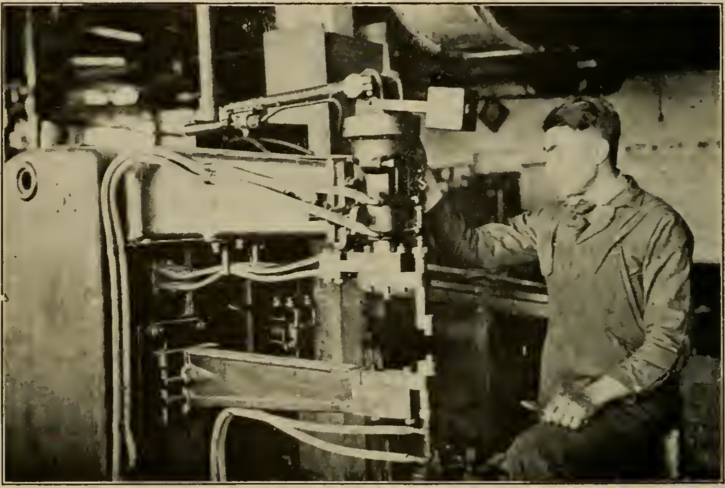


Locating Walls of a Building
Aspinwall and Lincoln, Civil Engineers

Group of Civil Engineering Students

Electrical Engineering Students

Winding Armatures
Armature Shop—Boston Elevated Railway Co.



Operating a Spot Welder
United Shoe Machinery Company—Beverly

42-1 Qualitative Analysis

Course: IV	*Preparation: 41-1, 41-2*
Second year, both terms	*Two hours per week*

The course is designed not merely to consider the procedures used in the detection of the common elements, but to deal in a much broader way with the principles involved in chemical analysis and to broaden the student's knowledge of inorganic chemistry, especially the chemistry of the metallic elements. In the latter part of the course questions involving the analysis of unusual mixtures will be discussed with especial emphasis on the interpretation of analytical results.

42-2 Qualitative Analysis Laboratory

Course: IV	*Preparation: 42-1 taken concurrently*
Second year, both terms	*Five hours per week*

After a series of preliminary experiments illustrating principles and giving opportunity for practice in writing equations, the analysis of unknown substances is undertaken, beginning with solutions and simple salts, and later analyzing minerals, pigments, slags, alloys and various commercial products, such as boiler compounds, cleaning powders, glass, enamels, and similar inorganic substances.

43-1 Quantitative Analysis

Course: IV	*Preparation: 42-1, 42-2*
Third year, first term	*Two hours per week*

The general principles of quantitative analysis. Half of the time is devoted to the consideration of typical methods in gravimetric analysis: such as, the determination of chloride in salt, the analysis of ferrous sulphate for iron and the sulphate, the complete analysis of brass, and other analyses involving general principles of procedure. The other half of the time is devoted to the methods of volumetric analysis as illustrated in the use of acid and alkali determinations, oxidation methods involving bichromate, permanganate and iodine, and the methods of volumetric precipitation. Special attention is given to chemical calculations, and the solution of numerous analytical problems is one of the essential features of the course.

43-2 Quantitative Analysis Laboratory

Course: IV	*Preparation: 43-1 taken simultaneously*
Third year, first term	*Five hours per week*

Analytical practice illustrating the methods discussed in Course 43-1. The calibration of burettes, the use and care of analytical balances, and a limited number of typical gravimetric and volumetric analyses are included in the course, in which great stress is laid on the accuracy, care, and integrity necessary for successful quantitative work.

44-1 Technical Analysis

Course: IV	*Preparation: 43-1, 43-2*
Third year, second term	*Two hours per week*

A continuation of Course 43-1 dealing more specifically with the methods of testing used in connection with industrial operations. It will include the rapid methods for steel, the analysis of boiler waters, gases, fuels, oils, paints, varnishes, and similar substances.

44-2 Technical Analysis Laboratory

Course: IV	*Preparation: 44-1 taken concurrently*
Third year, second term	*Five hours per week*

Designed to illustrate by a limited number of analyses the technical methods of quantitative analysis. Problems will be assigned individually, depending on the student's future plans or his inclination, and will be selected from the fields of steel analysis, gas and fuel analysis—including calorific testing, water analysis. Time is devoted to the study of pigments, soaps, or in general in the analysis of that class of materials in which the student is most interested.

45-1 Organic Chemistry I

Course: IV	*Preparation: 43-1 and 43-2 taken concurrently*
Third year, both terms	*Three hours per week*

The underlying principles and theories of organic chemistry, the methods of preparation, and characteristic reactions of carbon compounds. The important organic compounds will be considered in detail; because they serve as the most convenient examples for illustrating fundamental principles which elucidate the chemical character of substances which are of practical importance.

45-2 Organic Chemistry Laboratory I

Course: IV	*Preparation: 45-1 taken concurrently*
Third year, both terms	*Five hours per week*

The operations, apparatus, and the laboratory technique involved in organic work: such as, fractional distillation, extraction, crystallization, steam distillation, determinations of melting points, boiling points, and the like. It deals also with general methods of preparation, such as etherification, saponification, sulphonation, diazotization, etc. The student will prepare a number of compounds—including nitro-benzene, aniline, ethers, phenols, and other typical organic substances.

45-3 Organic Chemistry II

Course: IV	*Preparation: 45-1*
Fourth year, both terms	*Two hours per week*

A continuation of Course 45-1, but designed to lay special emphasis on the industrially important organic compounds, their preparation, technical uses, and methods of identification. The latter part of the course will be carried out as a seminar, the work consisting of reading in books, journals, and patent literature, followed by reports and discussions.

45-4 Organic Chemistry Laboratory II

Course: IV	*Preparation: 45-3 taken concurrently*
Fourth year, both terms	*Five hours per week*

Preparations and reactions of typical organic substances—including the methods of separation and identification of simple mixtures. The instruction also includes a study of the qualitative tests for the important elements occurring in organic compounds, and quantitative determinations of carbon, hydrogen, and nitrogen.

46-1 Chemical Engineering

Course: IV *Preparation: 023-2, 13-1, 23-3, 43-1, 48-1, taken concurrently*
Fourth year, both terms *Two hours per week*

Problems of a chemical engineering nature are given to broaden the students' knowledge of chemical apparatus. A study of stoichemetrical relations is taken up to refresh the students' mind on his general chemistry. The subject of heat flow is discussed at length, followed by a consideration of methods of crushing, grinding, and separation, which are taken up quite fully. A treatment of flow of fluids is given, in which the fundamentals of hydraulics are reviewed and elaborated upon. Finally, a discussion of distillation is given, the more common types of apparatus being brought to the attention of the student. Numerous practical problems are solved endeavoring to develop in the student ability to connect practice with theory whenever possible.

47-1 Industrial Chemistry

Course: IV *Preparation: 41-1, 42-1, 44-1, 45-2*
Fourth year, both terms *Three hours per week*

The more important technical chemical processes. Much attention is given to the general operations common to many industries: such as, crushing, grinding, lixiviation, filtration, evaporation, distillation, crystallization, etc., and to the details of various types of apparatus used for carrying on these processes. Some of the more important manufacturing industries: such as, the production of alkali, fertilizers, glass, pigments, cement, soap, explosives, paper, as well as wood distillation, the refining of petroleum, etc., are also considered in detail.

47-2 Industrial Chemical Laboratory

Course: IV *Preparation: 47-1 taken concurrently*
Fourth year, both terms *Five hours per week*

The quantitative study of the preparation and purification of a small number of chemical products, selected as types of reactions of industrial importance. The processes employed are carefully controlled, and the final products are analyzed to determine their purity. When the work is completed, a careful detailed report of each process is made and discussed in class.

48-1 Physical Chemistry

Course: IV
Preparation: 41-1, 42-1, 43-1
Fourth year, both terms
Two hours per week

The more important principles of Theoretical Chemistry are treated with great thoroughness and are illustrated by applying them to a large variety of problems. The principles are further illustrated by lecture experiments. During the course the following subjects are considered: pressure volume relations of gases and solutions, derivation of molecular and atomic weights, conductivity of solutions, ionic theory and mass action law, effect of temperature on chemical equilibrium, the laws of energy with reference to the production of heat and work, the electro-motive force of voltaic cells, and other electro-chemical topics.

48-2 Physical Chemistry Laboratory

Course: IV
Preparation: 48-1 taken concurrently
Fourth year, first term
Three hours per week

A series of exercises to give the student a knowledge of the methods employed in molecular weight determinations and in studying the important properties of solutions. Especial emphasis is laid on the underlying principles upon which all work of this character is based.

50-1 Engineering Conference

Courses: I, II, III, IV
Preparation: ——
Third and Fourth years, both terms
One hour per week

An informal discussion in class of the various duties in Engineering Practice which the students perform with the several co-operating firms. By this means, each student is enabled to profit by the work of the others, and they are all guided toward a broader viewpoint of their duties, and the relation of their individual work to that of the concern as a unit. Such subjects as problems in methods of manufacture, transportation, management, and distribution of charges, are all considered in the course.

51-1 Thesis

Course: I *Preparation: ——*
Fourth year, both terms *One hour per week*

All students in all courses in order to become candidates for a degree must present a thesis showing advanced work in some branch of their course. Each student chooses the subject for thesis after consultation with the head of the department.

In the Civil Engineering Course, any investigation in highway engineering, railroad engineering, steel or concrete design, or testing of materials. is acceptable as a subject for a thesis, provided the work is done in a thorough, businesslike manner, and a well-balanced report and working drawing, in case of a design, is presented. The subject should be of sufficient weight to require at least three hours of work per week in the first term and six hours per week in the second term. One additional hour per week is spent in consultation with the instructor in order that he may see how the student's work is progressing, and to enable him to help the student make the work of most benefit to himself. Students may work together on an important investigation but individual initiative is encouraged.

All theses must be approved by the Dean. They are to be handed to him not later than the first day of the final examination period. They must be submitted in form for binding, written on only one side of standard school thesis paper, 8 inches by 10½ inches, with one inch margin on each side (see "Requirements for graduation.") Upon acceptance, the thesis becomes the property of the school, and is not to be printed or published wholly or in part without the consent of the School.

52-1 Thesis

Course: II *Preparation*
Fourth year, both terms *One hour per week*

During the senior year each student is required to write a thesis. This thesis is intended primarily to test the student's ability to do original work along scientific lines. The problem may be in the nature of research, an original design, or a test. While consultations with an instructor are expected, the student is encouraged to take the initiative. With this end in view, only one hour a week is scheduled for regular consultations, while the student is required to put in at least three hours per week the first term and eight hours per week the second term on his own behalf. More weight is given to his manner of attacking and carrying through the investigation than to the actual results obtained.

For rules governing the writing and submitting of theses see Course 51-1.

53-1 Thesis

Course: III	*Preparation: — —*
Fourth year, both terms	*One hour per week*

This thesis may consist of an account of some research made by the student, or an original subject of peculiar interest to him in his course of study, or some other subject of similar nature, but in all cases must first be submitted to and approved by the head of the department. While only one hour per week is scheduled for consultation with the instructor, the student should expect to put in at least three additional hours per week the first term and six hours per week the second term of his senior year on the investigation.

For rules governing the writing and submitting of theses see Course 51-1.

54-1 Thesis

Course: IV	*Preparation: — —*
Fourth year, both terms	*One hour per week*

The study of one or more problems of limited scope through original investigation during the senior year. The student is usually advised to choose a single problem of not too complex a nature which can be completed with three hours' work per week for the first term and six hours' work per week for the second term. The subject may be either in inorganic, organic, or physical chemistry, but is subject to the approval of the instructor in charge of the course. The student is given an opportunity for planning and carrying out research work and he must show individual initiative before his thesis is accepted as satisfactory for graduation.

A study of the literature of the subject to be investigated is an essential part of the work. A preliminary report of the earlier work with an outline of the experimental work to be undertaken is to be submitted before work in the laboratory is begun. A conference of one hour per week is held in connection with the work in order that the instructor may see that the student's efforts are not wasted and to direct the student's reading along the proper channels. The completed thesis must contain not only a complete description of the investigation and results obtained in the laboratory, but also a general review of, or references to, the reading done in collaboration with the work.

For rules governing the writing and submitting of theses see Course 51-1.

90-1 Physical Training

Courses: I, II, III, IV	*Preparation: — —*
All terms	*Two hours per week*

All students are required to take this course. Health, strength, and vitality do not come by chance, but by obedience to natural laws. It is very essential for the students to acquire good habits of life. The work in the gymnasium is of the body building type with plenty of competition. Regular classes in calisthenics are held under an able physical instructor.

Subjects of Instruction

No.	SUBJECT	Course	Year
010–1	English	I, II, III, IV	1
021–1	Trigonometry	I, II, III, IV	1
022–1	Analytic Geometry	I, II, III, IV	1
023–1	Calculus	I, II, III, IV	2
023–2	Calculus	I, II, III, IV	2
030–1	Physics Laboratory	I, II, III, IV	1
031–1	Physics	I, II, III, IV	1
031–2	Physics Laboratory	I, II, III, IV	2
032–1	Light	I, II, III, IV	2
032–2	Physics Laboratory	I, II, III, IV	2
032–3	Heat	I, II, III, IV	2
033–1	Precision of Measurements	II, III	2
041–1	Mechanical Drawing	I, II, III, IV	1
041–2	Mechanical Drawing	I, IV	1
041–3	Mechanical Drawing	II, III	1
042–1	Machine Drawing	I, IV	2
042–2	Machine Drawing	I, IV	2
042–3	Machine Drawing	II, III	2
042–4	Machine Drawing	II	2
043–1	Descriptive Geometry	I, II, III, IV	1
044–1	Mechanism	I, III, IV	2
044–2	Mechanism	II	2
044–3	Mechanism	II	2
051–1	Geology	I, II	3
061–1	Economics and Sociology	I, II, III, IV	1
062–1	Government	I, II, III, IV	2
063–1	History of Science	I, II, III, IV	3
064–1	German	IV	4
11–1	Surveying	I	1
11–2	Surveying Field and Practice	I	1
11–3	Surveying	I	2
11–4	Surveying Field and Practice	I	2
11–5	Surveying	II, III	3
12–1	Railroad Surveying	I	2
12–2	Railroad Surveying Field and Practice	I	2
12–3	Railroad Engineering	I	3
12–4	Railroad Engineering Field and Practice	I	3
13–1	Hydraulics	I, II, III, IV	3
13–2	Hydraulic Motors	II, III	4
14–1	Theory of Structures	I	3
14–2	Structural Drawing	I	3
14–3	Engineering Structures	I	4
14–4	Structural Design	I	4
15–1	Concrete	I, II	4
15–2	Concrete Design	I, II	4
16–1	Materials	I, II*, III*	4
16–2	Testing Materials Laboratory	I	4
16–3	Foundations	I	4
17–1	Highway Engineering	I	4
21–1	Applied Mechanics	I, II, III, IV	2
21–2	Strength of Materials	I, II	3
21–3	Strength of Materials	III, IV	3
22–1	Graphical Analysis	II	3
22–2	Elementary Machine Design	II	3
22–3	Machine Design	II	4

Subjects of Instruction
Continued

No.	SUBJECT	Course	Year
23–1	Heat Engineering	II, III	3
23–2	Engineering Laboratory	II, III	4
23–3	Heat Engineering	I, IV	3
23–5	Heat Engineering	II	4
24–1	Production Engineering	II	1
24–2	Production Engineering	II	1
24–3	Power Plant Equipment	II	3
24–4	Journals and Reports	II	4
24–5	Journals and Reports	II	4
24–6	Standard Engineering Products and Processes	II, III	4
25–1	Industrial Plants	II	4
30–1	Elements of Electricity	I, II, IV	2
30–3	Applied Electricity	I, II, IV	3
30–4	Applied Electricity Laboratory	I, II, IV	3
31–1	Elements of Electrical Engineering	III	1
32–1	Electrical Engineering I	III	1
32–2	Electrical Engineering Laboratory I	III	1
32–3	Electrical Engineering II	III	2
32–4	Electrical Engineering Laboratory II	III	2
32–5	Electrical Engineering III	III	2
32–6	Electrical Engineering Laboratory III	III	3
32–7	Electrical Engineering IV	III	3
32–8	Electrical Engineering Laboratory IV	III	4
32–9	Electrical Engineering V	III	4
33–1	Electrical Measurements	III	3
33–2	Electrical Measurements Laboratory	III	3
34–1	Electrical Engineering VI	III	4
35–1	Advanced Electricity	III	4
40–1	Inorganic Chemistry	I, II, III	1
41–1	Inorganic Chemistry	IV	1
41–2	Inorganic Chemistry Laboratory	IV	1
42–1	Qualitative Analysis	IV	2
42–2	Qualitative Analysis Laboratory	IV	2
43–1	Quantitative Analysis	IV	3
43–2	Quantitative Analysis Laboratory	IV	3
44–1	Technical Analysis	IV	3
44–2	Technical Analysis Laboratory	IV	3
45–1	Organic Chemistry I	IV	3
45–2	Organic Chemistry Laboratory I	IV	3
45–3	Organic Chemistry II	IV	4
45–4	Organic Chemistry Laboratory II	IV	4
46–1	Chemical Engineering	IV	4
47–1	Industrial Chemistry	IV	4
47–2	Industrial Chemistry Laboratory	IV	4
48–1	Physical Chemistry	IV	4
48–2	Physical Chemistry Laboratory	IV	4
50–1	Engineering Conference	I, II, III, IV	3 & 4
51–1	Civil Engineering Thesis	I	4
52–1	Mechanical Engineering Thesis	II	4
53–1	Electrical Engineering Thesis	III	4
54–1	Chemical Engineering Thesis	IV	4
90–1	Physical Training	I, II, III, IV	1,2,3,4

*Third year

REGISTER OF STUDENTS

Enrolled During the School Year 1919 - 1920

NAME.	COURSE.	HOME ADDRESS.
Abramson, Samuel	Ch. E.	*Roxbury*
Abromson, Harry P.	Ch. E.	*Cambridge*
Abromson, Onne	Ch. E.	*Cambridge*
Aimo, Karl H.	C. E.	*Allston*
Albert, Samuel	E. E.	*Beverley*
Allan, Charles R.	M. E.	*Pittsfield*
Allen, Earle C.	C. E.	*Holbrook*
Allen, Homer R.	C. E.	*Concord Junction*
Allen, Wallace E.	M. E.	*Faneuil*
Alves, John J.	M. E.	*Boston*
Arata, Claude J.	E. E.	*Hallowell, Me.*
Atkinson, Lloyd C.	E. E.	*Jamaica Plain*
Atkinson, Ralph L.	Ch. E.	*Dorchester*
Bailey, Louis M.	E. E.	*So. Duxbury*
Bailey, Percy	E. E.	*Kingston*
Baker, Charles G.	Ch. E.	*Georgetown*
Baker, Chester P.	Ch. E.	*Brockton*
Baker, Clifford D.	M. E.	*Beverly*
Baker, Nathaniel P.	Ch. E.	*Boston*
Ballou, George D.	C. E.	*Dorchester*
Barbeau, Joseph W.	Ch. E.	*Salem*
Barlow, Ellis J.	E. E.	*Watertown, Conn.*
Barker, Charles K., Jr.	E. E.	*Natick*
Bashaw, Roy J.	C. E.	*Richford, Vt.*
Baxter, Charles E.	C. E.	*Boston*
Bearse, Richard C.	Ch. E.	*Springfield*
Becker, Abraham A.	Ch. E.	*Cambride*
Berg, William F.	E. E.	*Chelmsford*
Berlyn, Lewis	E. E.	*Salem*
Berry, George F.	C. E.	*Baldwinville*
Bessom, Ralph	M. E.	*Lynn*
Bickford, Randolph L.	E. E.	*Vinal Haven*
Bigelow, Cecil H.	M. E.	*Monument Beach*
Bliss, Raymond W.	M. E.	*Winthrop*
Bliss, Theodore B.	Ch. E.	*Jamaica Plain*
Bluemer, Edwin F.	Ch. E.	*Brookfield*
Boardman, Raymond E.	Ch. E.	*Natick*
Boden, Arthur T.	E. E.	*Beverly*
Bonapartian, Haigaz K.	C. E.	*Boston*
Boyd, Thomas P.	M. E.	*Chelsea*
Bradbury, Raymond	M. E.	*New Britain, Conn.*
Bradstreet, Raymond B.	Ch. E.	*Middleton*
Brask, Henry	C. E.	*Attleboro*
Brennan, James F.	M. E.	*Salem*
Bridges, Theodore R.	E. E.	*Portland, Maine*
Briggs, H. O.	M. E.	*Rhinebeck, N. Y.*
Britchky, Hyman	Ch. E.	*Foxboro*
Bronson, Clarence	E. E.	*Watertown, Conn.*
Brooks, Francis W.	M. E.	*Belmont*
Brown, Bernard C.	Ch. E.	*Georgetown*
Brown, John D.	C. E.	*Boston*

NAME.	COURSE.	HOME ADDRESS.
Brown, Lester A	C. E.	*Lynn*
Brown, Martin	M. E.	*Boston*
Brown, Ralph E.	E. E.	*Rockland*
Brown, Richard B., Jr.	E. E.	*Plymouth*
Brown, Robert H.	Ch. E.	*Medford*
Buckley, James W.	M. E.	*Gloucester*
Burhoe, Paul E.	E. E.	*Ashland*
Burton, Charles E.	C.E.	*South Ashfield*
Bushnell, Laverne	M E.	*Hanover, N. H.*
Butterworth, Percy T.	E. E.	*Forest Hills*
Callanan, Herbert	M. E.	*Danvers*
Capen, Bernard	Ch. E.	*Stoughton*
Carl, James W.	M. E.	*Cambridge*
Carlsen, Fred H.	E. E.	*Gloucester*
Carnie, Robert H.	E. E.	*Vinal Haven, Maine*
Carroll, Francis R.	Ch. E.	*Cambridge*
Carter, Curtis S., Jr.	E. E.	*Groveland*
Caswell, Orville G.	M. E.	*Lynn*
Cate, Herman W	E. E.	*Ward Hill*
Cates, Lewis G.	C. E.	*Boston*
Chamberlain, Kenneth W.	C. E.	*Alton, N. H.*
Chandler, Erwin P.	E. E.	*Dexter, Maine*
Chase, Charles S.	E. E.	*Leicester*
Chase, Chester R.	M. E.	*Wenham*
Cheney, Norman	M. E.	*Avon*
Clarke,Kenneth O.	E. E.	*Kingston*
Clarke, Robert H.	C. E.	*Melrose Highlands*
Clements, George F.	C. E.	*Somerville*
Coffin, Emery T.	E. E.	*East Boston*
Cohen, Morris	C. E.	*Dorchester*
Collias, Peter C.	E. E.	*Fall River*
Collins, Charles P.	C. E.	*Woodstock, Vt.*
Collins, Desmond M.	M. E.	*Dorchester*
Connell, John H.	Ch. E.	*Roxbury*
Converse, Everett C. W.	M. E.	*Springfield*
Cook, Harold S.	C. E.	*Dorchester*
Cook, Hiram J.	Ch. E.	*Franklin*
Cooke, F. M.	E. E.	*Danvers*
Cooke, Howard W.	E. E.	*Athol*
Coombs, Seldon P.	M. E.	*Medford*
Craig, Kenneth	M. E.	*Boston*
Craig, Robert M.	Ch. E.	*Jamaica Plain*
Cramer, George W.	C. E.	*Willimansett*
Cressy, Dustin G.	E. E.	*Bradford, N. H.*
Crossman, Hartwell H.	C. E.	*Barrowsville*
Cummings, John J.	C. E.	*Boston*
Cundari, Frank A.	C. E.	*South Boston*
Curtis, Thorald S.	C. E.	*Stoughton*
Cushing, Levi G.	E. E.	*South Duxbury*
Dacey, Jeremiah J.	M. E.	*Franklin*
Damon, Donald B.	Ch. E.	*Keene, N. H.*
Danehy, Raymond S.	M. E.	*Cambridge*
Davis, Leon P.	C. E.	*Kennebunk, Maine*
Davis, Stuart S.	E. E.	*Beverly*
Dawe, Allen S.	C. E.	*Boston*
Dearborn, Elmore L.	C. E.	*Hampton, N. H.*

NAME.	COURSE.	HOME ADDRESS.
Delano, Ellis R.	M. E.	*Marshfield*
Dempsey, James J.	M. E.	*Winthrop*
Dennis, Francis F.	C. E.	*Salem*
Di Ambrosio, James	C. E.	*East Boston*
Dickens, James, Jr.	M. E.	*Newburyport*
Dickey, Edward E.	M. E.	*Danvers*
Dixon, Herbert C.	C. E.	*Gloucester*
Doane, Kendric P.	C. E.	*Groveland*
Doherty, Edward A.	E. E.	*Roxbury*
Donnell, Richard S.	E. E.	*East Boston*
Donnelly, Robert L.	C. E.	*Beverly*
Douglas, Alton L.	M. E.	*East Hiram, Maine*
Downey, Ralph S.	M. E.	*Hingham*
Downing, G. Stillman	Ch. E.	*Lynn*
Duston, Carmillus W.	M. E.	*Wellesley*
Dyer, Nathaniel B.	E. E.	*Salem*
Earnshaw, Eldred K.	Ch. E.	*Mystic, Conn.*
Edwards, Morgan C.	M. E.	*Franklin, N. H.*
Edwards, Raymond H.	M. E.	*North Stonington, Conn.*
Egli, Alfred C.	M. E.	*Baltic, Con.*
Ellicott, Charles H.	M. E.	*Montpelier, Vt.*
Ellms, Lindsay	E. E.	*Cohasset*
Engstrand, Waldo A.	E. E.	*Cranston, R. I.*
Engstrom, Howard T.	Ch. E.	*Plymouth*
Erskine, James S.	E. E.	*Newburyport*
Everett, Albert E.	C. E.	*Everett*
Factor, David	M. E.	*Cambridge*
Fairbanks, Ernest E.	Ch. E.	*Wakefield*
Farley, Arthur W.	M. E.	*Salem*
Faunce, Laurence S.	M. E.	*East Rochester, N. H.*
Fearing, Edward W.	E. E.	*South Weymouth*
Fitzgerald, Arthur H.	C. E.	*Milford*
Flagg, Walter E.	E. E.	*Wellesley*
Flanders, Henry R.	E. E.	*Vineyard Haven*
Foisie, George E.	C. E.	*Nashua, N. H.*
Fort, George E.	E. E.	*Newton*
Fowler, William H.	C. E.	*Melrose*
Fox, Edward	Ch. E.	*Roxbury*
Fox, F. Sumner	E. E.	*Newburyport*
Fraser, William A.	E. E.	*Vinalhaven, Maine*
Frasheri, George D.	E. E.	*Korcha, Albania, Europe*
Frawley, Thomas E.	C. E.	*Concord Junction*
Frost, Richard W.	E. E.	*Newburyport*
Frye, Richard	M. E.	*Royalston*
Fundin, Hjalmar O. E.	M. E.	*Mattapan*
Furrier, Joseph P.	C. E.	*Lynn*
Fusek, John G.	M. E.	*Budapest, Hungary*
Fuwa, Tyler	Ch. E.	*Georgetown*
Gaffey, Francis J.	M. E.	*Salem*
Gargaro, Alfred	C. E.	*Quincy*
Garrott, James H.	E. E.	*Pawtucket, R. I.*
Gates, Henry S.	E. E.	*Narragansett Pier, R. I.*
Gerrish, Harry J.	C. E.	*Portland, Me.*
Gilbert, Merton L.	E. E.	*Cohasset*
Ginder, Chester J.	C. E.	*Everett*

NAME.	COURSE.	HOME ADDRESS.
Gladding, Richard S., Jr.	Ch. E.	*Beverly*
Gleason, Carl B.	Ch. E.	*Marblehead*
Goldstein, Abraham	M. E.	*Cambridge*
Gordon, Morris J.	Ch. E.	*Boston*
Gordon, Phineas	C. E.	*Boston*
Goucher, Charles L.	C. E.	*Milford*
Gould, Joseph E.	Ch. E.	*Roxbury*
Goulet, Narcisse T.	Ch. E.	*Pawtucket, R. I.*
Gove, Edwin W.	C. E.	*Beverly*
Gray, Ernest W.	Ch. E.	*Scituate*
Greenlaw, Dana S.	Ch. E.	*Westbrook, Maine*
Grout, Nathan	C. E.	*Sherborn*
Grozier, John W.	E. E.	*Foxboro*
Guild, Philip B.	Ch. E.	*Essex Junction, Vt.*
Gunther, Frederick E.	E. E.	*Roslindale*
Haartz, Frederick H.	C. E.	*North Scituate*
Hale, Harold W.	C. E.	*Swansea*
Hall, Wallace L.	Ch. E.	*Brookline*
Hammond, Cleon C.	E. E.	*Abington*
Hammond, John C.	M. E.	*Fall River*
Harding, Arthur E.	C. E.	*Lynnfield*
Harrison, Leo V.	M. E.	*Everett*
Hatch, Douglas P.	M. E.	*Lynn*
Hathaway, Chauncey E.	Ch. E.	*Dorchester*
Hawes, Arthur R.	Ch. E.	*Sudbury*
Hayes, Paul W.	M. E.	*Winthrop*
Heap, Sheldon S.	E. E.	*Atlantic*
Heinlein, Martin L.	E. E.	*Natick*
Hiatt, Frank C.	E. E.	*Malden*
Hill, George B.	Ch. E.	*Berlin, N. H.*
Hills, Charles S.	E. E.	*South Natick*
Hills, Howard L.	Ch. E.	*New Britain, Conn.*
Hjelmberg, Arthur G.	M. E.	*Boston*
Holland, Carl T.	E. E.	*Nantasket*
Holthaus, Frederick J.	E. E.	*Winthrop*
Hopkins, Forrest R.	M. E.	*Franklin, N. H.*
Howell, James F.	E. E.	*Fort Banks*
Hulsman, David L.	Ch. E.	*Everett*
Huntington, Clarence M.	M. E.	*Cambridge*
Hylan, Ralph R.	E. E.	*Allerton*
Ireland, Theodore S.	M. E.	*Gloucester*
Israel, Walter B.	E. E.	*Cambridge*
Jennings, Laurence W.	M. E.	*Winthrop*
Johnson, Joseph E.	M. E.	*Roxbury*
Jones, Archibald L.	E. E.	*Middleton*
Jones, Ashley S.	Ch. E.	*Lynn*
Jones, Harold H.	C. E.	*Swampscott*
Jones, James P.	E. E.	*Sherwood Park, N. Y.*
Junior, Francis E.	C. E.	*Plymouth*
Kaseta, John A.	E. E.	*Brockton*
Keene, Burton, F.	E. E.	*South Hanson*
Keith, James B.	Ch. E.	*Elmwood*
Kelleher, James J.	M. E.	*Salem*
Kelleher, John P.	M. E.	*Charlestown*
Kelley, Thomas	M. E.	*Roslindale*

NAME.	COURSE.	HOME ADDRESS.
Kendall, George H.	Ch. E.	*Newburyport*
Kenney, David J.	C. E.	*Dorchester*
Kenney, John H.	M. E.	*Boston*
Keough, John J.	C. E.	*East Boston*
Knopp, Otto R. H.	E. E.	*East Taunton*
Knuepfer, Charles F.	M. E.	*Boston*
LaBree, Harold	E. E.	*Medford Hillside*
LaMarche, Logan	C. E.	*Cambridge*
Landry, Herbert A.	M. E.	*Norwood*
Larson, William	M. E.	*Worcester*
Lawler, G. Harold	E. E.	*Newburyport*
Lawler, John D.	Ch. E.	*Lowell*
Lee, I. Albert	E. E.	*Salem*
Lee, Walter H.	C. E.	*Dorchester*
Letourneau, Roland F.	Ch. E.	*Rockland*
Levenson, Edward	C. E.	*Roxbury*
Levin, Eli	Ch. E.	*Roxbury*
Levine, Samuel	C. E.	*Roxbury*
Levy, Hyman	E. E.	*Boston*
Lewis, Ervin H.	E. E.	*Newtonville*
Lewis, Ralph F.	Ch. E.	*Provincetown*
Lilley, Wallace H.	C. E.	*Chicopee*
Livingstone, Herman	Ch. E.	*Woodstock, Vt.*
Loubris, Gaston E.	M. E.	*Wakefield*
Loud, Emery S.	Ch. E.	*Rockland*
Love, Gerald G.	C. E.	*Concord*
Lovejoy, Richard P.	Ch. E.	*Franklin*
Lowe, Roland R.	C. E.	*Hopedale*
Luddy, William A.	C. E.	*East Bridgewater*
Lundin, Erik H.	E. E.	*Proctor, Vermont*
MacEachern, S. Robert	M. E.	*Manchester*
MacWilliams, Harold	C. E.	*Newburyport*
McKenne, Charles D.	M. E.	*Everett*
McManus, John P.	C. E.	*Roxbury*
Mallion, George A.	Ch. E.	*South Boston*
Maloney, Edward F.	Ch. E.	*Dorchester*
Mapes, George	E. E.	*Cohasset*
March, David M.	Ch. E.	*Boylston*
Marcus, Jacob	Ch. E.	*Winthrop*
Marcus, Maurice	C. E.	*Dorchester*
Marden, Norman L.	E. E.	*Newburyport*
Marrs, Purinton F.	E. E.	*Concord Junction*
Marsh, Charles C.	E. E.	*Newburyport*
Marshall, James P.	E. E.	*Hallowell, Maine*
Martin, B. Malcolm	M. E.	*Swampscott*
Mead, Carl E.	M. E.	*Willimansett*
Meade, William H., Jr.	E. E.	*Peabody*
Medieros, Dennis F.	M. E.	*Charlestown*
Mendenholl, Elihu W.	M. E.	*Morehead, N. C.*
Millea, William W.	E. E.	*Salem*
Miller, Arthur C.	M. E.	*Braintree*
Miller, Theodore M.	M. E.	*East Bridgewater*
Mills, Henry R.	M. E.	*Montpelier, Vermont*
Milne, David C.	C. E.	*Worcester*
Minor, Payson S.	E. E.	*Concord, N. H.*

NAME.	COURSE.	HOME ADDRESS.
Moody, Donald C.	M. E.	*Bradford*
Morgan, Stuart H.	Ch. E.	*Medford*
Morrell, Stanley A.	E. E.	*Peabody*
Morton, Horace D.	M. E.	*Gloucester*
Mylott, Henry G.	Ch. E.	*Abington*
Najjar, John N.	M. E.	*Dorchester*
Nason, George L.	M. E.	*Holbrook*
Nicholson, Donald	Ch. E.	*Lynn*
Nickerson, Clarence W.	M. E.	*East Braintree*
Nickerson, Henry L.	C. E.	*Everett*
Noble, Robert A.	E. E.	*Rochester, Vt.*
Noel, George K.	E. E.	*Portsmouth, N. H.*
Nolan, J. Henry	C. E.	*Jamaica Plain*
Northrop, Stanley O.	Ch. E	*Allston*
Nylin, Carl G.	M. E.	*Worcester*
Nyman, Chester L.	C. E.	*Marlborough*
O'Malley, Alfred E.	E. E.	*Clinton*
Orhbom, Viking T.	C. E.	*Fitchburg*
Packer, Oscar W.	M. E.	*Groveland*
Parad, Emanuel	M.E.	*Boston*
Parker, Alton D.	E. E.	*Quincy*
Parsons, Edward S.	C. E.	*Gloucester*
Pascoe, Thomas E.	C. E.	*Chocorua, N. H.*
Patterson, Eldon W.	E. E.	*Natick*
Paulsen, Iver E.	Ch. E.	*Woburn*
Paver, William H.	M. E.	*Franklin*
Pearce, Howard T.	C. E.	*Concord Junction*
Pearson, Carl R.	C. E.	*Winthrop*
Peck, Donald L.	E. E.	*Framingham*
Perkins, Theodore	M. E.	*Waltham*
Perry, Edward J.	M. E.	*Putnam, Conn.*
Perry, Gilbert F.	C. E.	*Putnam, Conn.*
Perry, Norman	Ch. E.	*Dedham*
Peterson, Clarence W.	M. E.	*Everett*
Peterson, Vernon	M. E.	*North Abington*
Phipps, Chester	M. E.	*Holliston*
Power, Herbert K.	M. E.	*Peabody*
Prives, Hyman S.	Ch. E.	*East Boston*
Quinn, John F.	E. E.	*Salem*
Quint, Dudley	Ch. E.	*Lynn*
Reed, Linwood	M. E.	*Everett*
Reed, Robert F.	E. E.	*Granville Ferry, Nova Scotia*
Reid, Fred G.	E. E.	*Wakefield*
Reis, Oscar E.	E. E.	*West Chelmsford*
Rhoades, Clifford T.	C. E.	*Bridgewater*
Rich, Luke A.	Ch. E.	*Newton*
Richards, Walter C.	C. E.	*Weymouth*
Ricker, Karl P.	M. E.	*Danvers*
Ritter, Eugene W.	E. E.	*Orleans, Indiana*
Robbins, Bertrand B.	E. E.	*Elmwood*
Robbins, Percy A.	Ch. E.	*Bridgewater*
Robertson, Donald S.	Ch. E.	*Springfield*
Robinson, William J.	Ch. E.	*Pawtucket, R. I.*
Root, Burritt A.	M. E.	*New Britain, Conn.*

NAME.	COURSE.	HOME ADDRESS.
Roscoe, Albert M.	Ch. E.	*Medford*
Rosen, Philip	Ch. E.	*Boston*
Rosenblatt, Irving	C. E.	*Saxonville*
Rubin, Benjamin	C. E.	*Roxbury*
Russell, Charles C., Jr.	M. E.	*Exeter, N. H.*
Sampson, Edward N.	E. E.	*Sharon*
Sanborn, Frank D.	M. E.	*Springfield, Vt.*
Santis, Julius C.	Ch. E.	*Boston*
Sargent, Reginald M.	Ch. E.	*Springfield*
Savignac, Alphonse L.	C. E.	*Amesbury*
Schaller, W. Arnold	Ch. E.	*Salem*
Schwartz, Joseph P.	C. E.	*Revere*
Scruton, Jerold F.	Ch. E.	*Alton, N. H.*
Seavey, H. Thornton	E. E.	*Stoughton*
Secor, Austin B.	Ch. E.	*Belmont*
Secord, Harold W. M.	E. E.	*Newton*
Shanowav, Philip	M. E.	*Peabody*
Shaw, Richard C.	M. E.	*East Bridgewater*
Shea, George H.	E. E.	*North Abington*
Shea, William L.	Ch. E.	*Thompsonville, Conn.*
Shirley, Crandall L.	E. E.	*Arlington Heights*
Shopneck, Henry P.	Ch. E.	*Boston*
Shumway, Herbert L.	M. E.	*Mattapan*
Smith, Benjamin L.	E. E.	*Concord*
Smith, Farnham W.	Ch. E.	*Concord*
Southworth, Burton	E. E.	*Stoughton*
Spear, Roger E.	C. E.	*Winthrop*
Sperl, Warren	Ch. E.	*Auburndale*
Standtke, Max	C. E.	*Proinz Brandenburg, Ger.*
Standley, David	C. E.	*Beverly*
Staples, Merton	C. E.	*Danvers*
Stensrud, Clarence	C. E.	*Beverly*
Stevens, Thomas A.	E. E.	*Deep River, Conn.*
Stewart, Arthur H.	M. E.	*Roxbury*
Stoddard, Hatherley A., Jr.	M. E.	*Salem*
Stoloff, Louis G.	C. E.	*Lowell*
Stowell, Preston D.	C. E.	*North Weymouth*
Sullivan, John J.	E. E.	*Holyoke*
Sullivan, William H.	M. E.	*Salem*
Sunderland, Ralph M.	M. E.	*Eagleville, Conn.*
Swanson, Gustaf	Ch. E.	*Proctor, Vt.*
Tarplin, Emanuel	Ch. E.	*Lynn*
Tenney, William F.	M. E.	*Hallowell, Maine*
Thomas, William E.	M. E.	*Millis*
Thompson, Alan M.	C. E.	*Roslindale*
Thompson, Harold C.	C. E.	*Bridgewater*
Thompson, Herbert L.	Ch. E.	*Norwood*
Thompson, John H.	E. E.	*Greenwood, N. H.*
Thompson, Oscar F.	C. E.	*Norwood*
Thorne, Francis B.	M. E.	*Millis*
Thurlow, Raymond	C. E.	*Newburyport*
Tirrell, Philip M.	C. E.	*South Lyndeboro, N. H.*
Toole, Cameron S.	C. E.	*Clinton*
Topalian, Asadour	E. E.	*Brighton*
Treanor, John H.	Ch. E.	*Dorchester*

NAME.	COURSE.	HOME ADDRESS.
Turner, Burton G.	C. E.	*Eastport, Maine*
Vincent, George D.	C. E.	*Cambridge*
Walker, Robert K.	E. E.	*Pawtucket, R. I.*
Wallace, Ralph M.	Ch. E.	*Stoughton*
Waugh, Stanley P.	Ch. E.	*East Boston*
Webber, George J.	E. E.	*Wilmington*
Wentworth, Clarence S.	M. E.	*Revere*
Werth, Lloyd L.	M. E.	*Rochester, N. Y.*
Wheeler, Clifford E.	Ch. E.	*Malden*
White, Donald M.	Ch. E.	*Winthrop*
White, Theodore	Ch. E.	*Abington*
Whiton, Wilson	M. E.	*Hingham*
Wilkins, Henry M.	C. E.	*Marblehead*
Wilkins, Paul L.	E. E.	*Cambridge*
Williams, Charles I.	M. E.	*Quincy*
Williams, Edwin C.	C. E.	*Natick*
Willis, Howard A.	Ch. E.	*Melrose Highlands*
Wood, Arthur A.	E. E.	*Woodstock, Vt.*
Wood, Manson E.	M. E.	*Wakefield*
Wright, Moses E., Jr.	E. E.	*Newburyport*
Wyman, Raymond	C. E.	*East Boston*
Yetwinsky, David M.	E. E.	*Revere*
Young, Horace B.	M. E.	*Quincy*
Young, Nelson B.	M. E.	*Reading*
Young, Wilfred A.	E. E.	*Baltic, Conn.*

INDEX

Page

Absences 24, 40
Admission 30, 31
Age 30, 32
Alternating Current Machinery 73, 78
Alternating Current Machinery Laboratory 77
Analytic Geometry 56
Application Blank 31, 103
Application for Admission 31
Applied Mechanics 68
Athletics 22, 43
Attendance 24, 36, 40
Board of Governors 7
Books 38
Calculus 56
Calendar 3, 36
Cauldron, The 44
Certificates of Birth and Education 32
Chemical Engineering 84
Chemical Engineering Course, Description 52
Chemical Engineering Course, Schedule 53
Chemical Engineering Course, Thesis 87
Chemistry, Industrial 84
Chemistry, Inorganic 80
Chemistry, Organic 82
Chemistry, Physical 85
Civil Engineering Course, Description 46
Civil Engineering Course, Schedule 47
Civil Engineering Course, Thesis 86
Clubs 43, 44
Concrete 46
Concrete Design 67
Condition Examinations 39
Conduct 41
Conference, Engineering 85
Co-op, The 37, 44
Cooperating Firms 24, 27
Correlation of Practical and Theoretical Work 23
Courses of Study 36, 45, 55
Cuts 40
Descriptive Geometry 60
Design, Machine 69
Design, Structural 66
Direct Current Machinery 73
Discipline 41
Dormitories 34
Drainage, Street 68
Drawing, Rooms 18
Drawing, Machine 59, 60
Drawing, Mechanical 58, 59
Drawing, Structural 66
Earnings 25
Economics 61
Elective Subjects 39
Electrical Engineering 74
Electrical Engineering Course, Description 50
Electrical Engineering Course, Schedule 51
Electrical Engineering Course, Thesis 87
Electrical Engineering Laboratory 20, 74
Electrical Measurements 78
Electrical Measurements Laboratory 19, 78
Electricity, Advanced 79
Electricity, Applied 73
Electricity, Applied Laboratory 73
Electricity, Elements of 73
Engineering Conference 85
Engineering Equipment 17
Engineering, Heat 70, 71
Engineering, Highway 68
Engineering Laboratory 70
Engineering Practice 23
Engineering, Production 71
Engineering Products and Procloses 72
Engineering Structures 66
English 55
Entrance Examinations 32, 33
Equipment, Engineering 17

Page
Examinations ... 39
Executive Council ... 8
Faculty ... 9
Fall Term ... 36
Fees ... 37
Firms ... 23, 27
Foundations ... 67
General Information ... 13
Generators ... 73, 75
Geology ... 61
German ... 62
Government ... 61
Grades ... 39
Graduates ... 43
Graduation, Requirements for ... 42
Graphical Analysis ... 69
Gymnasium ... 22
Heat ... 58
Heat Engineering ... 70, 71
High Schools ... 15
Highway Engineering ... 68
History of Science ... 62
History of the School ... 13
Holidays ... 4
Hydraulic Motors ... 65
Hydraulics ... 65
Industrial Chemistry ... 84
Industrial Chemistry Laboratory ... 84
Industrial Plants ... 72
Inorganic Chemistry ... 80
Inorganic Chemistry Laboratory ... 80
Instructors ... 9
Instruments, Civil Engineering ... 18
Journals and Reports ... 72
Laboratories ... 17
Laboratory Breakage ... 37
Laboratory, Chemical ... 21
Laboratory, Electrical Engineering ... 20
Laboratory, Electrical Measurements ... 19, 78
Laboratory, Electricity ... 73, 74, 75, 76, 77
Laboratory, Engineering ... 70
Laboratory Fees ... 37
Laboratory, Industrial Chemistry ... 84
Laboratory, Inorganic Chemistry ... 80
Laboratory, Mechanical ... 17
Laboratory, Organic Chemistry ... 83
Laboratory, Physical Chemistry ... 85
Laboratory, Physics ... 21, 56, 57
Laboratory, Qualitative Analysis ... 81
Laboratory, Quantitative Analysis ... 82
Laboratory, Technical Analysis ... 82
Laboratory, Testing Materials ... 67
Languages ... 55, 62
Lectures, Special ... 12
Libraries ... 22
Light ... 57
Location ... 34, 35
Machine Design ... 69
Machine Design, Elementary ... 69
Machine Drawing ... 59, 60
Map ... 35
Marks ... 39
Materials ... 67
Materials, Strength of ... 68
Materials, Testing Laboratory ... 67
Mathematics ... 32, 55, 56
Measurements, Electrical ... 78
Measurements, Precision of ... 58
Mechanical Drawing ... 58, 59
Mechanical Engineering Course, Description ... 48
Mechanical Engineering Course, Schedule ... 49
Mechanical Engineering Course, Thesis ... 86
Mechanical Laboratory ... 17
Mechanics ... 57
Mechanics, Applied ... 68
Mechanism ... 60, 61
Natatorium ... 22

	Page
Northeastern College, Schools	Inside Back Cover
Object of School	13
Officers of the College	8
Organic Chemistry	82, 83
Organic Chemistry Laboratory	83
Outside Interests	43
Pavements	68
Payments	32, 37, 38
Physical Chemistry	85
Physical Chemistry Laboratory	85
Physical Training	22, 88
Physics	57
Physics Laboratory	21, 56, 57
Plan of Operation	14
Plants, Industrial	72
Positions	23, 43
Power Plant Equipment	71
Practical Work	23, 26
Precision of Measurements	58
Preparatory Schools	15
Preparatory Studies	30, 33
Probation	34
Production Engineering	71
Professional Society	44
Professors	9
Qualitative Analysis	81
Qualitative Analysis Laboratory	81
Quantitative Analysis	81
Quantitative Analysis Laboratory	82
Railroad Engineering	64, 65
Railroad Surveying	64
Refunds	38
Register of Students	92
Relation of School to High Schools	15
Reports of Standing	41
Requirements for Admission	30
Requirements for Graduation	42
Requirements for Thesis	42, 86
Residence	34
Roads	68
Schedule of Courses	47, 49, 51, 53
Schedule of Practical Work	26
Science, History of	62
Scholarship	39
School Year	36
Socials	43
Societies	44
Special Students	31, 39
Spring Term	36
Standard Engineering Products and Processes	72
Standing in Studies	39
Steam Turbines	70
Street Drainage	68
Strength of Materials	68, 69
Structural Design	66
Structural Drawing	66
Structures, Engineering	66
Structures, Theory of	65
Student Activities	48
Student Activities Fee	37
Subjects of Instruction	54, 90
Summer Preparatory Schools	33
Summer Term	36
Supplies	38
Surveying	62, 63, 64
Swimming Pool	22
Synopsis of Courses	55
Technical Analysis	82
Technical Analysis Laboratory	82
Terms	5, 36
Terms of Study	45
Theory of Structures	65
Thermodynamics	70, 71
Thesis	42, 86, 87
Trigonometry	55
Trustees	7
Tuition Fees	32, 37
Vacation	36
Wages	25
Working Relations	24

NORTHEASTERN COLLEGE
CO-OPERATIVE SCHOOL OF ENGINEERING

Boston, Mass..............................19

To the Dean:

(Name in full)...

hereby respectfully applies for admission to the..............................
Engineering Course of the Co-operative School of Engineering for the school year 19 19 , and submits the following

Residence ....*Street*

Town ....

State ....*Tel*....................

Date of Birth...*Age*.....................

Parent's (father's) name...

" " *address* ....

Graduate of ....*High School. Year*..................

Location of High School..

If not a graduate, how many years were you in High School?..................*When did you leave?*..

Why did you leave?...

Name of Principal ....

If employed since graduation, what is name of employer?

....

Employer's address ....

Names and addresses of two other persons, not clergymen to whom we may direct inquiries concerning you. (Give former employers, if possible.)...

....

....

....

(Over)

Do you plan to complete the full four years' course?..................

Do you wish to be placed at Engineering Practice through the school? ....

When do you wish to start Engineering Practice.........................

Have you a position which you wish to retain in co-operation with the School?..

Where will you live during the school-year?................................

Weight .... *Height* ....

Have you any physical infirmities?...

Is your general health good, fair, or poor?....................................

REMARKS

....

....

....

....

....

....

....

....

....

....

....

....

....

NORTHEASTERN COLLEGE

SCHOOL OF LAW

Evening Sessions

Established in 1898; incorporated in 1904. Provides a four-years' course in preparation for the Bar, and grants the Degree of Bachelor of Laws.

SCHOOL OF COMMERCE AND FINANCE

Evening Sessions

Established in 1907; incorporated in 1911. Offers the following three- and four-year courses leading up to the degree of B.C.S. (Bachelor of Commercial Science): Business Administration and Professional Accountancy. Any one passing the examination for advanced standing is enabled to complete any one of the regular courses and secure the degree in three years. Special courses in addition to regular courses.

CO-OPERATIVE SCHOOL OF ENGINEERING

Day Sessions

Four-year courses in Civil, Mechanical, Electrical and Chemical Engineering leading to the degrees of Bachelor of Civil Engineering (B. C. E.); Bachelor of Mechanical Engineering (B. M. E.); Bachelor of Electrical Engineering (B. E. E.); and Bachelor of Chemical Engineering (B. Ch. E.). The school operates in coöperation with engineering firms. Students earn while learning. Open to high school graduates.

EVENING SCHOOL OF ENGINEERING

Evening Sessions

A school offering three-year courses in Civil, Mechanical, Electrical Chemical and Structural Engineering.

SCHOOL OF LIBERAL ARTS

Evening Sessions

Courses of college grade in English Composition, Literature, Ancient and Modern Languages, Mathematics, History, Economics, Government, Psychology, Logic, Philosophy, Education, Public Speaking, Journalism and others. Professors and instructors of New England colleges are engaged for this work. This school enables young men to pursue in the evening courses of instruction of the same high standard as those conducted by the best day colleges.

For further information concerning any of the above schools or departments, address

NORTHEASTERN COLLEGE
316 Huntington Avenue, Boston, Massachusetts

CO-OPERATIVE SCHOOL OF ENGINEERING

FOUNDED FOR THE INSTRUCTION
OF MEN IN THE THEORY AND
PRACTICE OF ENGINEERING

Northeastern

January **College** 1920

CATALOG

of the

Evening
School of Engineering

1920-1921

PUBLISHED BY THE

TRUSTEES of NORTHEASTERN COLLEGE

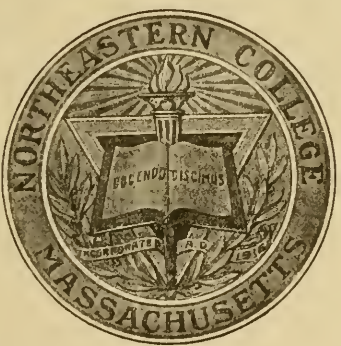
Boston Young Men's Christian Association

Number 316 Huntington Avenue, Boston, Massachusetts

THE ASSOCIATION BUILDING
HOME OF NORTHEASTERN COLLEGE

Northeastern College

CATALOG
of the
Evening School of Engineering



1920-1921

316 Huntington Avenue
BOSTON, MASSACHUSETTS

CALENDAR 1920-21

September 13-18
Registration

September 20
Opening of First Term

October 12
Columbus Day (School exercises omitted)

November 25
Thanksgiving Day (School exercises omitted)

December 23
End of First Term

December 24-31 inclusive
Christmas Recess

January 3
Opening of Second Term

February 22
Washington's Birthday (School exercises omitted)

April 8
End of Second Term

April 9
Close of School

Index

PAGE

CALENDAR 3

INDEX 4

OFFICERS OF GOVERNMENT 5

OFFICERS OF ADMINISTRATION 6

STAFF OF INSTRUCTION 7-8

GENERAL INFORMATION:

- Three-Year Engineering Courses 9
- Special Courses 9
- Requirements for Admission 9
- Tuition Fees 10
- Laboratory Fees 10
- Transfers 11
- Reports of Standing 11
- Positions Held by Graduates 11
- Scholarships 11
- Diplomas 12

COURSES OF STUDY:

- Civil Engineering Course 13
- Mechanical Engineering Course 14
- Electrical Engineering Course 15
- Chemical Engineering Course 16
- Structural Engineering Course 17

SUBJECTS OF INSTRUCTION 18
- Regular Courses 19
- Special Courses 29

EQUIPMENT 31

SCHEDULE OF CLASSES 36

RATES OF TUITION 38

NORTHEASTERN COLLEGE

THE TRUSTEES

President
ARTHUR STODDARD JOHNSON

1st Vice-President
ALBERT HARMON CURTIS

2nd Vice-President
SABIN POND SANGER

3rd Vice-President
GEORGE WHITTEMORE MEHAFFEY

Secretary
FRANCIS POPE LUCE

Treasurer
LEWIS ABBOTT CROSSETT

William Converse Chick
Russell Sturgis Codman
Henry Bradley Fenno
George Cabot Lee
Henry Gardner Lord
Joseph Grafton Minot
Walter Bemis Mossman
Henry Whiting Newhall
Silas Peirce
Charles Worthen Perkins
Thomas Hasting Russell
Sabin Pond Sanger
Frank Palmer Speare
Stanwood Gray Wellington

BOARD OF GOVERNORS

Chairman
ALBERT HARMON CURTIS

William Converse Chick
Henry Whiting Newhall
Stanwood Gray Wellington
Arthur Stoddard Johnson
George Whittemore Mehaffey
Frank Palmer Speare

NORTHEASTERN COLLEGE

OFFICERS OF THE COLLEGE

FRANK PALMER SPEARE, M.H., *President*
GALEN DAVID LIGHT, A.B., *Secretary-Bursar*

THE EXECUTIVE COUNCIL

FRANK PALMER SPEARE, M.H.
President of the College

CARL STEPHENS ELL, A.B., M.S.
Dean of the Co-operative School of Engineering and the Evening School of Engineering

THOMAS EDWARD PENARD, S.B.
Associate Dean of the Evening School of Engineering

DANA SCOTT SYLVESTER, L.L.B., B.C.S.,
Dean of the School of Commerce and Finance

PHILIP FRANCIS CLAPP, B.C.S.
Associate Dean of the School of Commerce and Finance

HOWARD HENRY CHARLES BINGHAM, A.B.
Executive Secretary of the School of Law

MILLAR DALAN BLACK, A.A.
Dean of the School of Liberal Arts

IRA ARTHUR FLINNER, Ph.B., A.M.
Headmaster of the Huntington School

THOMAS WEBB WATKINS, A.B.
Principal of Northeastern Preparatory School

GALEN DAVID LIGHT, A.B.
Secretary

NORTHEASTERN COLLEGE

STAFF OF INSTRUCTION

CARL STEPHENS ELL, A.B., M.S.
Dean

THOMAS EDWARD PENARD, S.B.
Associate Dean

JOHN BUTLER PUGSLEY, A.B.
Registrar

GEORGE FRANCIS ASHLEY
Mechanical Drawing

PERCY FRANCIS BENEDICT, S.B.
Mechanical Engineering

JOHN CARL BERQUIST
Mechanical Drawing

BURTIS SCOTT BROWN, C.E.
Concrete Construction

JOSEPH ARTHUR COOLIDGE, S.B.
Physics

PEARL WHITEFIELD DURKEE, S.B.
Civil Engineering

WALTER CARL EBERHARD, S.B.
Civil Engineering

FRED JAMES EVANS, S.B.
Structural Engineering

GEORGE BLODGETT GEE, C.E.
Civil Engineering

THOMAS MILLBURY KNOWLAND, S.B.
Chemical Engineering

JOHN ROBERT LEIGHTON
Civil Engineering

PHILIP CURTIS NASH, M.C.E.
Structural Engineering

NORTHEASTERN COLLEGE

STAFF OF INSTRUCTION

ROLAND GUYER PORTER
Mathematics

EDWARD WILLIAM GLADSTONE SMITH, A.B.
Mechanical Engineering

WILLIAM LINCOLN SMITH, S.B.
Electrical Engineering

ARTHUR EARLE SMITHIES
Mathematics

ELLWOOD BARKER SPEAR, Ph.D.
Chemical Engineering

JOSEPH SPEAR, A.B.
Mathematics

SAMUEL ABBOTT SMITH STRAHAN
Chemical Engineering

GEORGE ADOLPH TRUELSON
Architecture

HAROLD CHRISTIAN WEBER, B.S.
Chemistry

ABRAHAM ALBERT BECKER
Assistant in Chemical Engineering

ROBERT HUNTLEY CLARKE, Jr.
Assistant in Mechanical Drawing

KENDRICK PIKE DOANE
Assistant in Civil Engineering

ARTHUR RAYMOND HAWES
Assistant in Chemistry

SHELDON STOKES HEAP
Assistant in Electrical Engineering

GEORGE ARTHUR MALLION
Assistant in Physics

HENRY LEONARD NICKERSON
Assistant in Mechanical Drawing

ROBERT ACKLEY NOBLE
Assistant in Electrical Engineering

WALTER CARLTON RICHARDS
Assistant in Civil Engineering

GENERAL INFORMATION

Many men in various lines of industry feel the need of special instruction in Engineering, either to advance in their normal occupation, or to enable them to change their positions and get into work of an Engineering nature.

To such men the Evening School of Engineering offers a wide variety of regular Engineering Courses, and in addition, special instruction for those who desire it, in Architecture, Drawing, Design, Radio Telegraphy and Concrete Construction. The Engineering Courses require attendance three evenings a week, during a period of three years. While only the fundamental subjects are taken up, the courses compare very favorably with similar courses offered by the good technical schools.

Three-year Engineering Courses

Regular three-year courses, leading to a diploma, are offered in the following branches of Engineering:

I Civil Engineering
II Mechanical Engineering
III Electrical Engineering
IV Chemical Engineering
V Structural Engineering

Special Courses

Special courses in Architecture, Concrete Construction and Radio Telegraphy are offered by the School, and will be found described in detail in the latter part of this catalog.

Requirements for Admission

The work carried on in the Engineering Courses assumes that the entering student has had previous training in Elementary Algebra to quadratics, Plane Geometry, and has a good ground-work in English. An entering student should have completed at least the equivalent of from one or two years' work in a good high school. Those who have completed a full high-school course should be well fitted to carry on the courses and derive the maximum benefit from the work.

The men who finished grammar school, but who had not had the requisite previous training in Mathematics and English, can attend the Evening Courses of the Northeastern Preparatory School, and should be able to get the necessary preparation for entrance to the Engineering School in from one to two years.

There are no entrance examinations for entering students, but each applicant for admission is required to have an interview with the Dean.

The qualifications of each applicant will be ascertained and he will be advised as to just what work he is qualified to undertake.

Should a student prove to be unable to carry on his studies successfully, he may be required to discontinue any subject in which he is deficient, and complete such preparatory work as is deemed necessary, before being re-admitted to the subject in question.

Tuition Fees

For each year of the regular three-year Engineering Courses the tuition fee is sixty dollars. The tuition fee includes membership in the Association. This amount is payable as follows:

$30.00 upon entering the School
$15.00 November 15
$15.00 January 15

The tuition fee for special courses will be found on page 38.

Refunds

Refunds will be granted in accordance with the regular rules of the College. In computing refunds, students shall be charged at the rate of three dollars per week for each week of school attendance, and in addition to this, shall be charged an extra six dollars, over and above this weekly rate. The date of withdrawal of any student shall be taken as the day on which the School receives formal notice of his intentions to leave.

Laboratory Fees

All students taking courses in the Chemical Laboratories are charged a laboratory fee of five dollars. This fee is payable in advance and does not cover breakage or destruction of apparatus. It is non-returnable.

An additional laboratory deposit of five dollars must be made before a desk will be assigned to a student. At the close of the school year the cost of equipment, broken by the student or, not returnable will be deducted from this amount and the balance refunded. Students failing to check up their desks upon leaving school will be charged one dollar extra.

Transfers

No student is permitted to transfer from one course to another without consulting the Dean beforehand and receiving a transfer order, which must be presented at the School office for the proper transfer card.

Reports of Standing

An informal report of the students' standing is issued at the end of the first term, and a formal report, covering the year's work, is issued at the close of each year.

Positions Held by Graduates

The graduates of the School are in constant demand, and it may be said that those who complete one of the courses successfully can be sure of desirable employment in his chosen line.

Naturally the School does not guarantee to place its graduates in positions. This is not necessary since our graduates have no difficulty in finding places for themselves.

Special Students

A special student may take any subject, upon the approval of the Dean, provided he has had the necessary preliminary training.

Scholarships

As an aid to worthy men who desire an education and are unable to pay the tuition fees, a limited number of scholarships has been provided, which will be granted by the Board of Governors, to whom application should be made in writing. Students who can afford to pay are requested not to apply for this privilege.

Diplomas

Upon the satisfactory completion of any of the regular courses, the student is entitled to receive a diploma.

COURSES OF STUDY

GENERAL STATEMENT

The schedules of the various courses are given on the following pages. The first-year work of all courses is practically the same, with a few exceptions, which are made because of the need of the student for elementary training in his professional subjects.

The school year comprises twenty-eight weeks of class work and examinations. The twenty-eight weeks are divided into two terms of fourteen weeks each. The subjects in the Course Outlines on the following pages have been arranged by terms. Opposite these subjects will be found the number of periods of forty-five minutes each of class, recitation, laboratory or the drawing room work. The number in parenthesis, following the subject, is the number by which that subject is identified in the description matter under "Subjects of Instruction."

When a student elects a course, he is required to complete all subjects in that course in order to receive a diploma. No subject is to be dropped, or omitted, without the consent of the Dean.

COURSES OF STUDY

I. CIVIL ENGINEERING

The purpose of this course is to give the student an education in those subjects which form the basis of all branches of technical education, and a special training in those subjects comprised under the term "Civil Engineering." It is designed to give the student sound training, both theoretical and practical, in the sciences upon which professional practice is based.

Civil Engineering covers such a broad field that no one can become expert in its whole extent. It includes Topographical Engineering, Municipal Engineering and Railroad Engineering. It covers land surveying, the construction of sewers, waterworks, roads and streets. All these branches of Engineering rest, however, upon a relatively compact body of principles, and in these principles the students are trained by practice in the class room, drawing room and the field.

The course is designed to prepare the young engineer to take up the work of assisting in the location and construction of steam and electric railways, sewerage and water supply systems, etc.

FIRST YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Algebra (1)	2	Trigonometry (4)	2
Geometry (2)	1	Logarithms and Slide Rule (3)	1
Practical Physics (8)	2	Practical Physics (8)	2
Practical Physics Problems (9)	1	Practical Physics Problems (9)	1
Mechanical Drawing (10)	3	Mechanical Drawing (10)	3

SECOND YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Analytical Geometry (5)	2	Calculus (6)	2
Surveying (11)	4	Surveying (11)	4
Topographical Drawing (12)	2	Topographical Drawing (12)	2
Highway Engineering (13)	1	Highway Engineering (13)	1

THIRD YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Practical Mechanics (16)	2	Practical Mechanics (16)	2
Hydraulics (27)	2	Strength of Materials I (17)	2
Railroad Engineering (14)	2	Railroad Engineering (14)	2
Railroad Engineering Drawing (15)	3	Railroad Engineering Drawing (15)	3

II. MECHANICAL ENGINEERING

This course is designed to give a foundation in those fundamental subjects which form the bases for all professional engineering practice, and especially to equip the young engineer with a knowledge of the various phases of Mechanical Engineering. The course embraces instruction by text-book, lecture, and drawing room.

The course affords training in the methods, and gives practice in the process of Construction, which develops in the student the capacity for thinking along mechanical lines, thus enabling him to base all his work upon fundamental principles already learned, rather than upon empirical rules. It is the endeavor to give the student a good theoretical training and meanwhile devote sufficient time to the practical work, so that he may become a proficient engineer, both in theory and in practice in the various branches of Mechanical Engineering.

FIRST YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Algebra (1)	2	Trigonometry (4)	2
Geometry (2)	1	Logarithms and Slide Rule (3)	1
Practical Physics (8)	2	Practical Physics (8)	2
Practical Physics Problems (9)	1	Practical Physics Problems (9)	1
Mechanical Drawing (10)	3	Mechanical Drawing (10)	3

SECOND YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Analytical Geometry (5)	2	Calculus (6)	2
Practical Mechanics (16)	2	Practical Mechanics (16)	2
Materials of Construction (25)	2	Strength of Materials I (17)	2
Mechanical Engineering Drawing (22)	3	Machine Drawing (23)	3

THIRD YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Strength of Materials II (18)	2	Foundations (26)	2
Hydraulics (27)	2	Hydraulic Motors (28)	2
Thermodynamics (29)	2	Thermodynamics (29)	2
Machine Design (24)	3	Machine Design (24)	3

III. ELECTRICAL ENGINEERING

Electrical Engineering has developed rapidly in recent years and students are required to have a thorough appreciation of physical theory, as well as a broad working knowledge of Mathematics. It is essential that students planning to take this course should realize the fundamental necessity of obtaining a solid grounding in these subjects.

It is not the purpose of the course to attempt the impossible aim of turning out fully trained engineers in the various branches of the science, especially as it is becoming daily more and more differentiated and specialized. The course is designed rather to lay a broad and thorough foundation for future progress along the lines of work which may particularly appeal to the individual, and give him a good working acquaintance with the essential principles which underlie each of the more specialized branches of professional activity. Parallel with the theoretical work, runs a carefully planned course of laboratory work which is intended to develop the student's powers of planning work for himself.

FIRST YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Algebra (1)	2	Trigonometry (4)	2
Geometry (2)	1	Logarithms and Slide Rule (3)	1
Practical Physics (8)	2	Practical Physics (8)	2
Practical Physics Problems (9)	1	Practical Physics Problems (9)	1
Mechanical Drawing (10)	3	Mechanical Drawing (10)	3

SECOND YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Analytical Geometry (5)	2	Calculus (16)	2
Practical Mechanics (16)	2	Practical Mechanics (16)	2
Direct Currents, Lectures (30)	2	Direct Currents, Lectures (30)	2
Direct Currents, Laboratory (31)	3	Direct Currents, Laboratory (31)	3

THIRD YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Alternating Currents, Laboratory (33)	3	Alt. Currents, Lectures (32)	2
Alternating Currents, Lectures (32)	2	Alt. Currents, Laboratory (33)	3
Hydraulics (27)	2	Hydraulic Motors (28)	2
Thermodynamics (29)	2	Thermodynamics (29)	2

IV. CHEMICAL ENGINEERING

The great industrial advance of recent years has placed the chemical industry in the front rank of progress. The most potent reason for this may be found in the replacement of the old rule-of-thumb methods with scientific methods.

Owing to keen competition, manufacturers have been compelled to utilize every product of their plants, and this has called for skilled chemical knowledge. The course in Chemical Engineering has for its purpose the training of students competent to take responsible places in the operation of industries based on chemical principles.

During their course many students are employed in chemical industries as gas manufacturing plants, chemical engineering companies, etc. They not only get an excellent training in the theory of such work at school, but also a knowledge of the commercial side of the industry as well.

The class work includes a training in Inorganic, Analytical, and Organic Chemistry, which is accompanied by appropriate laboratory work.

FIRST YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Algebra (1)	2	Trigonometry (4)	2
Chemical Physics (7)	2	Chemical Physics (7)	2
Inorganic Chemistry, Lectures (34)	2	Inorganic Chemistry, Lectures (34)	2
Inorganic Chemistry, Laboratory (35)	3	Inorganic Chemistry, Laboratory (35)	3

SECOND YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Analytical Chemistry, Lectures (36)	2	Analytical Chemistry, Lectures (36)	2
Analytical Chemistry, Laboratory (37)	7	Analytical Chemistry, Laboratory (37)	7

THIRD YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Organic Chemistry, Lectures (38)	2	Organic Chemistry, Lectures (38)	2
Organic Chemistry, Laboratory (39)	6	Organic Chemistry, Laboratory (39)	6

V. STRUCTURAL ENGINEERING

The purpose of this course is to give the student a special training in those subjects comprised under the term "Structural Engineering." It is designed to give the student sound and thorough training in the science upon which professional practice is based.

Structural Engineering covers such a broad field that no one can become expert in its whole extent. It includes the design and construction of girders, columns, roofs, trusses, arches, bridges, buildings, walks, dams, foundations and all fixed structures and movable bridges. It includes also a knowledge of the relative merits of the design and construction of buildings, bridges and structures composed of different materials used by the engineer, such as concrete, reinforced concrete, timber, cast iron and steel.

The course is designed to prepare the young engineer to take up the work of assisting in the design and construction of structures; to undertake intelligently supervision of erection work in the field and general contracting.

FIRST YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Algebra (1)	2	Trigonometry (4)	2
Geometry (2)	1	Logarithms and Slide Rule (3)	1
Practical Physics (8)	2	Practical Physics (8)	2
Practical Physics Problems (9)	1	Practical Physics Problems (9)	1
Mechanical Drawing (10)	3	Mechanical Drawing (10)	3

SECOND YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Analytical Geometry (5)	2	Calculus (6)	2
Materials of Construction (25)	2	Strength of Materials I (17)	2
Practical Mechanics (16)	2	Practical Mechanics (16)	2
Structural Drawing (19)	3	Structural Drawing (19)	3

THIRD YEAR

FIRST TERM	Periods per week	SECOND TERM	Periods per week
Strength of Materials II (18)	2	Foundations (26)	2
Theory of Structures (20)	4	Theory of Structures (20)	4
Structural Design (21)	3	Structural Design (21)	3

SUBJECTS OF INSTRUCTION

Instruction is given by lectures and recitations, and by practical exercises in the field, the laboratories and the drawing rooms. A great value is set upon the educational effect of these exercises, and they form the foundation of each of the courses. Text-books are used in many subjects, but not in all. In many branches the instruction given differs widely from available text-books and in most of such cases, notes on the lectures and laboratory work are furnished to the students. Besides oral examinations in connection with the ordinary exercises, written examinations are held from time to time.

In the following pages will be found a detailed statement of the scope of the subjects offered in the various courses. The subjects are classified, as far as possible, related studies being arranged in sequence.

The subjects are numbered, or numbered and lettered, for convenience of reference in consulting the various Course Schedules.

The requisites for preparation include not only the subjects specified by number, but also those required as a preparation for them. The reason for this is that to carry on properly the more advanced subjects, the student must have become proficient in all the elementary subjects. Some studies, specified as being required in preparation, may be taken simultaneously. The student must complete such subjects before starting on more advanced work.

By careful consideration of the Course Schedules, in connection with the following Description of Subjects, the applicant for a special course may select, for the earlier part of that course, such subjects as will enable him to pursue later those more advanced subjects which he may particularly desire.

The topics, included in the list which follows, are subject to change at any time by action of the School authorities.

SYNOPSIS OF SUBJECTS

Regular Courses

---

1. Algebra

Preparation: Elementary Algebra

This course is taken by all regular students during the first term of the first year and consists of a general review of Algebra up to quadratic equations, and a continuation including quadratic equations, ratio and proportion, variation and the use of formulas, with applications to problems in Physics and Engineering.

2. Geometry

Preparation: Elements of Plane Geometry

This course is taken by all regular students during the first term of the first year. It consists of a rapid review of the useful theorems, with special reference to mensuration.

3. Logarithms and Slide Rule

Preparation: 1

In this course instruction is given in the theory of logarithms with thorough drill in their use, with applications to the solution of exponential equations, especially in formulas; the theory and use of Slide Rules, including a general discussion of precision and rules for significant figures.

4. Trigonometry

Preparation: 1, 2, 3

This course consists of lectures and recitations covering radians, coördinates, trigonometric ratios, formulas, law of sines, law of cosines, solution of right and oblique triangles, with applications to problems in Engineering.

5. Analytical Geometry

Preparation: 4

In this course instruction is given by lectures and recitations in the following subjects: Plotting of functions, interpolation, the straight line, the conic sections, curves represented by various equations of common occurrence in engineering, graphic solution of equations, determination of laws from the data of experiments, simplification of formulas.

6. Calculus

Preparation: 4 and 5

This course is taken by all regular engineering students during the second term of the second year. Instruction is given by lectures and recitations in the following subjects: rate of change, differentiation, integration, definite integrals, with application to the determination of mean value, area, volume, center of gravity and moment of inertia.

7. Chemical Physics

A course of experimental lectures and exercises, designed especially for students of Chemistry. The work is devoted to a study of the mechanics of solids, liquids and gases; heat and its effects; and elementary electricity. The problems are also planned to give drill work in Mathematics in its applications to Physics and Chemistry.

8. Practical Physics

Preparation: 1, 2

This course consists of two lectures per week throughout the first year. Instruction is given in the practical application of physical laws. Each lecture, so far as possible, is accompanied by practical tests in the lecture room on large-size apparatus, built especially for this course, so that the student may actually see a demonstration of the truth of the various laws, thus enabling him to grasp readily the underlying principles. The course is devoted to a study of the mechanics of solids, liquids and gases, heat and its effects, together with lectures on light and sound. Practical problems covering each phase of the work are given throughout the year, which are designed to fix in the student's mind the fundamental principles taken up in the lectures.

9. Practical Physics Problems

Preparation: 8

This course is taken by all regular students taking the course in Practical Physics (8), and is designed to give a more thorough understanding of the application of the principles discussed in the lectures to the solution of problems.

10. Mechanical Drawing

This course is of an elementary character, and is planned on the assumption that the student has had no experience in the use of drawing instruments. Instruction is given in the use of instruments, the T-square, triangles and French curves, and in the fundamental rules for making drawings. Simple geometrical constructions and the principle of orthographic projections are studied.

11. Surveying

Preparation: 4

The first term is devoted to a study of surveying instruments, the methods of making surveys, and the solution of problems in plane surveying.

In the second term, the methods used in topographic surveying, together with the problems relating thereto, are taken up in detail, as well as advanced and special problems in plane surveying. A study is also made of triangulation and barometric leveling.

Special emphasis is laid on the construction and use of the various kinds of maps and plans with which the surveyor should be familiar.

12. Topographical Drawing

Preparation: 10

The first half of the course is devoted to a study of the various conventional symbols used in the drawing of topographical maps. Each student is required to familiarize himself with these symbols and make an inked drawing containing several of them. Reasonable proficiency in the use and application to maps is expected. The latter part of the course is given over to the making of a contour map from field notes, then applying typical problems of earthwork, such as figuring volumes, balancing cuts and fills, grading, etc.

13. Highway Engineering

Preparation: 11

The course is outlined to give the student the principles and practice of modern highway engineering. This is not entirely a lecture course, for much time is given to the discussion and relative merits of numerous phases of the subject. The first part of the course considers the preliminary investigation, design, drainage, foundations and layout, for gravel, earth and broken stone roads, including the use of bituminous materials. The latter part of the course considers several classes of pavements, including bituminous concrete, bituminous gravel and macadam, asphalt, wood-block, stone block, concrete and brick. Some time is also devoted to studying sidewalks, curbs, bridges, culverts and pipe systems.

14. Railroad Engineering

Preparation: 11

This course consists of instruction in the computation and methods of laying out simple, compound, reverse and easement curves; frogs, switches and turnouts; the computation of earthwork by different methods, slope stakes, borrow pits and cross-section work.

15. Railroad Engineering Drawing

Preparation: 10, 14

From field notes, a map and profile of a preliminary survey for a railroad are plotted, the location is discussed and adjusted to the preliminary map. Other drawings involving the study of problems common to railroad practice are taken up. The course is supplemented by lectures.

16. Practical Mechanics

Preparation: 4, 7, 8

A course of lectures and recitations which comprise a study of the general methods and applications of statics, including the determination of reactions, stresses in frames, of distributed forces and center of gravity, moment of inertia and radius of gyration of plane areas and solids. Kinematics and dynamics are also taken up, including the equations for uniform and varying rectilinear motion, centrifugal force, work, power and kinetic energy.

17. Strength of Materials I

Preparation: 16

This course comprises a study of the strength of materials, mathematically treated. The subjects studied are: the stresses and strains in bodies subjected to tension, to compression and to shearing; common theory of beams, with thorough discussion of the distribution of stresses, shearing forces and bending moments; longitudinal shear, slopes and deflections, and the strength of shafts and springs.

18. Strength of Materials II

Preparation: 17

This is a continuation of Strength of Materials I in which a study is made of the combined stresses in beams subjected to tension and compression, as well as bending; also of the strength of hooks and columns, the design of riveted joints, and thin, hollow cylinders. A brief consideration of strains, and the relations of the stresses on different planes in a body, and the stresses in simple frames subjected to bending forces, is taken up in the latter part of the course.

19. Structural Drawing

Preparation: 10, 16

The course in structural drawing consists in the working out of various graphical problems of mechanics on the drawing board, drawing standard sections of structural steel shapes, structural details and the preparation of drawings, representing simple structures. The purpose of this course is to familiarize the student with detailed drawings and teach him where and how to dimension structural parts on working drawings.

20. Theory of Structures

Preparation: 18

This course consists of lectures, recitations and solution of problems. Instruction is given in the fundamental theory of structures, including the theory of beams, computation of reactions, moments, and shears for static and moving loads. The work in the classroom is supplemented by the solution of many practical problems in the drawing room.

21. Structural Design

Preparation: 19, 20

The course in structural design consists of work in the drawing room. It is a continuation of the course in structural drawing given in the second year, and includes the execution of elementary structural design, taking up in a practical way the principles given in the course in Theory of Structures. Each student is given data for various problems, the designs for which he works out in the drawing room, making all necessary computations and executing all drawings necessary for the preparation of a complete design of a number of engineering structures.

22. Mechanical Engineering Drawing

Preparation: 10

This course is a continuation of Mechanical Drawing, and includes problems on the point, line and plane; projections of solids; single and double curved surfaces and their intersections by oblique planes; and practical applications of the principles studied.

The principles of Mechanism are also studied. The problem work takes up the design of pulleys, belts, gearing and gear teeth development, cams and quick return motions used in machine tools such as shapers, slotters and planers.

23. Machine Drawing

Preparation: 10, 22

The aim of this course is to teach the proper way of making the necessary dimensioned drawings for use in practice, good shop systems being adopted. The instruction includes the making of working detail and assembly drawings of machinery from measurements.

24. Machine Design

Preparation: 18, 23

This course aims to give the student practice in the application of theoretical principles previously studied and at the same time acquaint him with the many practical details which must be considered in design work. The problems taken up in the early part of the course are of a static nature, while the later problems involve dynamical stresses. The problems of the course vary from year to year, but the following are typical of the designs taken up: arbor press, hydraulic flanging clamp, crane, air compressor, punch and shear, stone-crusher, etc.

In each design the constructive details are carefully considered, with special attention to methods of manufacture, provision for wear, lubrication, etc. The work is based on rational rather than empirical methods, the student being required to make all calculations for determining the sizes of the various parts and all necessary working drawings.

25. Materials of Construction

Preparation: 8, 16

This course consists of two lectures, or recitations during the first term of the second year, in the study of methods of testing and the strength of various materials used by the engineer. A detailed study is also made of the methods of manufacturing, properties and uses, of materials used in engineering work, such as lime, cement, concrete, brick, wood, stone, iron and steel.

26. Foundations

Preparation: 17, 18

A course covering the method of construction and design of the various kinds of foundations used in engineering construction, together with a study of the bearing power of different kinds of soil.

27. Hydraulics

Preparation: 6, 8

In this course both Hydrostatics and Hydrodynamics are discussed, and many practical problems are solved throughout the work. Under Hydrostatics, the pressures on submerged areas, together with their points of application, are studied; under Hydrodynamics, the flow of water through orifices, short tubes, nozzles, over weirs, and through pipes and open channels is taken up for discussion.

28. Hydraulic Motors

Preparation: 27

A series of exercises, mainly recitations devoted to a study of impulse wheels and reaction turbines, with reference to their proper construction, regulation and testing, and to the various sources of loss of energy in their operation. Practical problems relating to stream flow, storage and development of water power are considered.

29. Thermodynamics

Preparation: 6, 8

A course in perfect gases and steam including the solutions of general problems and the use of steam and entropy tables. The work covers air compressors, refrigeration, gas engines, steam engines, turbines, and the equipment of a power house, boilers, condensers, and auxiliaries.

30. Direct Currents, Lectures

Preparation: 8

A course of lectures, recitations and problem work during the second year, dealing with the fundamental laws and properties of electric and magnetic circuits. The course is devoted to the study of the principles of direct-current machinery.

31. Direct Currents, Laboratory

Preparation: 30

This course of one evening per week is taken in connection with the corresponding classroom course in Direct Currents, and the experiments performed are intended to illustrate and supplement that work. Each student is required to furnish a complete report, including theory, method of procedure, results and conclusions on each experiment performed by him.

32. Alternating Currents, Lectures

Preparation: 30

A course of lectures, recitations and problem work during the third year, dealing with the principles of electromagnetism, electrostatics, variable currents and harmonic currents including both single-phase and polyphase circuits. A detailed study is made of the construction, theory and application of alternating-current machines.

33. Alternating Currents, Laboratory

Preparation: 31, 32

This course of one evening per week is taken in connection with the corresponding classroom work in alternating currents, and the experiments performed are intended to illustrate and supplement that work. Each student is required to furnish a complete report, including theory, method of procedure, results and conclusions on each experiment performed by him.

34. Inorganic Chemistry

Preparation: 7

A course of experimental lectures on the fundamental laws and principles of inorganic chemistry. The work aims to familiarize the student with the properties and preparation of the following elements and their most important compounds:—oxygen, hydrogen, the halogens, sulphur, nitrogen, phosphorus, carbon, silicon, the alkali and alkaline earth groups, iron and aluminum. The course is to be taken in conjunction with 35.

35. Inorganic Chemistry, Laboratory

Preparation: 34

A laboratory course in which the student is expected to verify and illustrate the facts and principles that have been discussed in the lectures. To be taken in conjunction with 34.

36. Analytical Chemistry, Lectures

Preparation: 34

A practical course in qualitative and quantitative analysis consisting of lectures relating to the separation and indentification of the common metallic elements and the ordinary acids. The latter part of the year will be devoted to lectures and conferences on the fundamental principles of volumetric and gravimetric analysis.

37. Analytical Chemistry, Laboratory

Preparation: 36

This course in the laboratory is devoted to the separation and indentification of common elements and acids in the laboratory. Each student is required to make a complete analysis of various mixtures, alloys and chemicals used in manufacturing. A study is also made of volumetric determinations involving the use and the standardization of burettes, pipettes and measuring flasks. The work includes alkalimetry, acidimetry, indicators, oxidimetry, iodimetry, chlorimetry.

38. Organic Chemistry

Preparation: 36, 37

The course is devoted to lectures and conferences on the underlying principles and theories of organic chemistry. A detailed study is made of the methods of preparation, and characteristic reactions of the carbon compounds, as illustrated by the methane and benzine derivations.

39. Organic Chemistry, Laboratory

Preparation: 38

In this course the student is required to prepare in the laboratory a number of organic compounds, selected to show the characteristic reactions, and to give training in the practical separation and purification of organic substances. After this synthetic work, the students are given a practical course in organic analysis.

Special Courses

40. Architectural Drawing I

An elementary course, including the fundamental principles underlying all kinds of mechanical and architectural drawing; geometrical problems; orthographic and isometric projections; classical moldings; Roman alphabet and roof problems.

In connection with this course the instructor will outline a course of reading in architectural history.

41. Architectural Drawing II

Preparation: 40

The orders of Architecture. Practical architecture and details of construction. In this course the student is taught the component parts of buildings. Typical details of construction are drawn to a large scale and in isometric projection.

42. Architectural Drawing III

Preparation: 41

This course covers the making of complete plans, elevations and working drawings of some elementary problem.

Special Students

Students desiring special work in Architectural Drawing not outlined above, should consult with the instructor.

43. Radio Communication

This is a lecture course with demonstrations, given three periods per week for fourteen weeks (the course being repeated during the second term of the School), covering the elementary theory of electricity, motors and generators as used in radio working, ether waves, oscillating circuits, transmitting and receiving apparatus, arrangement of circuits, etc., as applied to both telegraphic and telephonic communication.

44. Radio Code and Practice, Elementary

This course is given three evenings per week for fourteen weeks and is repeated during the second term. It is intended for men who have little or no acquaintance with the code, and aims to bring such men up to a receiving speed of at least fifteen words per minute. A knowledge of the various message forms and regulations is also taught, together with the working of the simple sending and receiving sets.

45. Radio Code and Practice, Advanced

This course is also given three evenings per week for fourteen weeks and is repeated during the second term. It is open only to men who can already receive at the rate of twelve words per minute and is intended to carry them up to a receiving speed of at least twenty-two words per minute. It aims to teach all that is necessary to make them accomplished and skilled operators.

Men taking the elementary course during the first half year and entering this course in the second half should by the end of the year be capable of excellent work.

In these two courses in Radio Code and Practice which are under the supervision of Mr. R. G. Porter, who was on the teaching staff of the U. S. Naval Radio School at Cambridge until its termination, use will be made of the methods of instruction developed by the officers of that school assisted by the Department of Psychology of Harvard University and which have proved exceedingly efficient. A chart of normal progress is mapped out, and each man's progress in receiving is plotted from week to week, so that each man knows whether he is gaining as he should or not, and it can be determined very quickly whether or no he can develop into a speedy operator.

46. Radio Laboratory

This course will be given in connection with the regular courses in electrical laboratory work, and will consist of experiments on motor and generator action, motor control and maintainance storage batteries, etc., covering those special matters which are essential and applicable to the intelligent care and operation of the electrical machines used in transmitting sets.

47. Concrete Construction

A course in the theory and practice of concrete construction. It includes the design of buildings, bridges and various types of plain and re-inforced concrete structures.

An especially prepared text has been written for this course, in order to meet the demands of men who have not had the advantages of an ideal preparation. This text will be supplemented by lectures, slides and inspection trips of actual work.

EQUIPMENT

The School is now housed in the new building of the Association, and has very exceptionally equipped quarters for carrying on the work of the Engineering Courses.

MECHANICAL ENGINEERING DEPARTMENT

Our steam engineering plant is completely equipped with meters, scales, indicators and all the necessary accessory equipment for making complete boiler tests, and determining the efficiencies of the various appliances used in generating power, heat and light for our new building. This places at the disposal of our classes a perfectly equipped, up-to-date engineering department, and gives them the means of carrying on boiler tests, determining the efficiencies of various fuels and oils, taking indicator diagrams, determining the efficiency of modern reciprocating engines and turbines when direct connected to generators, as well as renders them familiar with all the various auxiliary appliances of such a plant, as condensers, pumps, air compressors, etc. The students also have the use of the equipment of our Automobile School, thus having opportunity to study the most advanced ideas in gasoline engine practice.

CIVIL ENGINEERING DEPARTMENT

Field Instruments

For work in the field the Civil Engineering Department possesses various surveying instruments, representing the principal makes and types of instruments in general use. The equipment includes transits, levels, compasses, plane table outfits, Locke hand levels, flag poles, leveling rods, stadia rods, engineers' and surveyors' chains, steel and cloth tapes and other accessories. For higher surveying there is an aneroid barometer for barometric leveling, and a sextant reading to ten seconds for hydrographic surveying. The transits are equipped with neutral glasses and reflectors for astronomical observations.

There have recently been added to the equipment a Keuffel & Esser 6¾″ transit, a Buff & Buff 4¾″ Mountain transit, a Keuffel & Esser 18″ Wye level, two surveyors' compasses and a Gurley Electric Current meter for hydraulic measurements, as well as all the miscellaneous apparatus necessary to equip the extra parties that the new instruments would accommodate.

The extent of the equipment and scope of the field work itself are designed to train the student's judgment as to the relative merits of the various types of field instruments.

Design and Drafting Rooms

The School possesses large, light and well-equipped drawing rooms for the carrying on of the designing and drafting, which form so important a part of civil engineering work. These rooms are supplied with lockers containing the drawing supplies, and files containing blue prints and photographs of structures that represent the best practice. Many of the prints and photographs are of structures erected in and about Boston.

ELECTRICAL ENGINEERING DEPARTMENT

Electrical Measurements Laboratory

This is equipped with apparatus fundamentally planned for teaching the principles of measurement, rather than for the precise determination of quantitative results. Nevertheless it is necessary for the proper performance of work in the other laboratory courses that a certain amount of careful quantitative work should be done, and the equipment is being steadily increased and developed with both ends held in view.

Apparatus is available for instruction in the following: Resistance by Ohm's law, substitution and direct reflection, voltmeter methods for high resistance, insulation resistance, specific resistance, slide wire bridge, Wheatstone bridge, current by electrolysis, electrostatic capacity, inductance, Poggendorf's method of E M F comparison, etc., under the first head, and for work under the second head there is considerable apparatus, among which may be mentioned a conductivity bridge, a Laboratory standard Wheatstone bridge, a Kelvin low-resistance bridge, a Leeds Northrup potentiometer with two standard Weston cells, volt box and steady source of high voltage for voltmeter calibration, numerous standard shunts and a 600 ampere hour storage battery for ammeter calibration, a commutator and leads for use with the Cary-Foster method and a chemical balance.

The Instrument Room is supplied with four General Electric 300-150-15 DC voltmeters, and four double-range Weston's, four single-range ammeters, six millivoltmeters with twelve interchangeable shunts of various ranges up to 100 amperes, all of high grade, together with numerous similar instruments of cheaper quality for lower-class work. For alternating current testing there are:

Three General Electric type P-3 single-phase wattmeters with double voltage and current ranges arranged for Y connection; two polyphase wattmeters of similar type and ranges, one of similar type specially constructed for measurement of core loss, three integrating wattmeters and one rotating standard.

Three 300-volt, three 150-volt and three 50-volt voltmeters.

Three 40-ampere, three 25-ampere, three 15-ampere, three 10-ampere, three 5 ampere and three 1-ampere ammeters, these all being in groups of three for polyphase work; and a laboratory standard AC voltmeter with extension coils.

There is also a considerable amount of auxiliary apparatus such as frequency indicators, synchroscopes and power factor meters.

Electrical Engineering Laboratory

This is equipped with numerous machines of different types, the size and voltage ratings being selected to reduce as much as possible the risk from large voltage and power apparatus, while at the same time availing the student of apparatus of commercial sizes such that the various quantities it is desired to measure will be of reasonable dimensions.

Small machines are used mostly for this reason, and also because the students in their engineering practice come in contact with the large sized and varied machinery of modern power houses and electrical plants continually.

Among the machines of this department are a pair of specially made matched machines, constructed to operate as single, two or three phase generators or motors, as well as synchronous converters, or double-current generators. On the direct-current side, these machines will operate as shunt, series or compound generators, either two or three-wire, or as shunt, series or compound motors. There is a 15 H.P. Westinghouse compound motor, a 3 K.W. compound generator, a 1 K.W. series generator, a 5 H.P. General Electric interpole motor, a 5 H.P. General Electric series motor, a 4 H.P. shunt motor, two 3 H.P. shunt motors, and a 2 H.P. shunt motor; also a 7½ kv-a. special General Electric alternator driven by a 10 H.P. General Electric interpole motor, and a 5 kv-a. Holtzer-Cabot alternator driven by a 10 H.P. Fort Wayne shunt motor. This last machine has two special rotors, permitting its use as a squirrel-cage or phase-wound, induction motor. In addition, there is a 5 K.W. Holtzer-Cabot three-phase synchronous converter, a 5 H.P. General Electric induction motor, which can be operated two or three phase, a 15 kv-a. three-phase alternator, giving practically a pure sine wave, and three General Electric transformers, each of 3 kv-a. capacity. During the past year there have been added three special 1 K.W. single-phase transformers, with leads arranged to give various types of transformer primary and secondary connections, also a set of reactances for making up three-phase inductive loads with extremely low power factor, and a similar set of condensers.

There is also available for advanced instruction, in co-operation with the Mechanical Engineering Department, the four three-wire generators in the main generating plant. Three of these generators are driven by Ridgeway reciprocating engines and one by a Westinghouse-Parson turbine.

Physics Laboratories

The Physics Department has been very completely equipped with all necessary apparatus for the experimental work that is required of the students, as well as that required for lecture demonstration. There is a large laboratory, together with a lecture room devoted entirely to Physics. Among other things have been added verniers, levels, spherometers, calorimeters, thermometers, pyrometers, a spectroscope, a microscope, a spectrometer, balances, standard gram weight, lecture table galvanometer, optical disk with all accessories, lenses, photometer, a full set of Weather Bureau apparatus, including a barograph, thermograph, hygrometer, barometer, maximum and minimum thermometers, etc. These, in addition to the equipment already owned, give a wide range to the experimental work that can be done.

Chemical Laboratories

The School has three laboratories completely equipped in all respects for carrying on all lines of chemical work, from that of a high school to that of most advanced college grade. They have accommodations for over one hundred and fifty students, and are suitably furnished with all the necessary appliances for chemical work. Some of these are: hoods, drying closets, a still, steam and hot-water baths, electrolytic circuits, vacuum and pressure apparatus, balances, combustion furnaces, and complete sets of apparatus for the sampling and analysis of flue gases and fuels. There are also testing machines for oils, viscosimeters, and different sorts of flash point apparatus. A chemical museum is connected with this department, where are kept specimens for purposes of illustration.

Libraries

The School shares the privileges of the steadily growing Y.M.C.A. Libraries in the Main Building. It also supports a professional library distributed among the various departments. In addition to this, it subscribes to current periodicals on engineering and scientific subjects for the exclusive use of students. All members of the School are entitled to take books from the Boston Public Library, and this offers a very unusual opportunity to our non-resident students.

Department of Physical Training

Our new gymnasium with all the latest modern equipment gives ample accommodation for all students. There is a running track on the grounds adjoining, together with tennis and hand-ball courts; also a large natatorium where swimming is taught by competent instructors. In connection with this department there are also six excellent bowling alleys, which may be used by the students upon the payment of a nominal fee.

COURSES OF STUDY

Schedule of Engineering Subjects

(Arranged alphabetically by subjects)

Subject Number	*Subject*	*Evenings*	*Time*
1	Algebra	Mon. and Thurs.	7.00-7.45
32	Alternating Currents, Lectures	Mon. and Thurs.	8.30-9.15
33	Alternating Currents, Laboratory	Tues.	7.00-9.15
36	Analytical Chemistry, Lectures	Mon. and Thurs.	7.00-7.45
37	Analytical Chemistry, Laboratory	Mon. and Thurs.	7.45-9.15
		Tues.	7.00-9.15
5	Analytical Geometry	Mon. and Thurs.	8.30-9.15
6	Calculus	Mon. and Thurs.	8.30-9.15
7	Chemical Physics	Mon. and Thurs.	8.30-9.15
30	Direct Currents, Lectures	Mon. and Thurs.	7.00-7.45
31	Direct Currents, Laboratory	Tues.	7.00-9.15
26	Foundations	Mon.	8.30-9.15
2	Geometry	Mon.	7.45-8.30
13	Highway Engineering	Tues.	8.30-9.15
27	Hydraulics	Mon. and Thurs.	7.00-7.45
28	Hydraulic Motors	Mon. and Thurs.	7.00-7.45
34	Inorganic Chemistry, Lectures	Mon. and Thurs.	7.45-8.30
35	Inorganic Chemistry, Laboratory	Wed.	7.00-9.15
3	Logarithms and Slide Rule	Mon.	7.45-8.30
23	Machine Drawing	Tues.	7.00-9.15
24	Machine Design	Tues.	7.00-9.15
25	Materials of Construction	Mon. and Thurs.	7.00-7.45
10	Mechanical Drawing	Wed.	7.00-9.15
22	Mechanical Engineering Drawing	Tues.	7.00-9.15
38	Organic Chemistry, Lectures	Wed.	7.00-8.30
39	Organic Chemistry, Laboratory	Mon. and Tues.	7.00-9.15
16	Practical Mechanics	Mon. and Thurs.	7.45-8.30
8	Practical Physics	Mon. and Thurs.	8.30-9.15
9	Practical Physics Problems	Thurs.	7.45-8.30
14	Railroad Engineering	Mon. and Thurs.	8.30-9.15
15	Railroad Engineering, Drawing	Tues.	7.00-9.15
17	Strength of Materials I	Mon. and Thurs.	7.00-7.45

Subject Number	*Subject*	*Evenings*	*Time*
18	Strength of Materials II	Mon. and Thurs.	8.30-9.15
21	Structural Design	Tues.	7.00-9.15
19	Structural Drawing	Tues.	7.00-9.15
11	Surveying	Mon. and Thurs.	7.00-8.30
20	Theory of Structures	Mon. and Thurs.	7.00-8.30
29	Thermodynamics	Mon. and Thurs.	7.45-8.30
12	Topographical Drawing	Tues.	7.00-8.30
4	Trigonometry	Mon. and Thurs.	7.00-7.45
40	Architectural Drawing I	Fri.	7.00-9.30
41	Architectural Drawing II	Fri.	7.00-9.30
42	Architectural Drawing III	Fri.	7.00-9.30
43	Radio Communication	Mon., Thurs. and Fri.	7.45-8.30
44	Radio Code and Practice (Elementary)	Mon., Thurs. and Fri. and	7.00-7.45 8.30-9.15
45	Radio Code and Practice (Advanced)	Mon., Thurs. and Fri. and	7.00-7.45 8.30-9.15
46	Radio Laboratory	By assignment	
47	Concrete Construction	Fri.	7.00-9.15

RATES OF TUITION

Regular Three-Year Courses

The tuition fee for each year of the regular courses shall be sixty (60) dollars, payable as follows:

$30.00 upon entering
$15.00 November 15
$15.00 January 15

The foregoing rates include membership in the Association.

Individual Engineering Subjects

(Arranged alphabetically by subjects)

	Course	*Tuition*
1	Algebra	$10.00
32	Alternating Currents, Lectures	20.00
33	Alternating Currents, Laboratory	30.00
36*	Analytical Chemistry, Lectures	20.00
37*	Analytical Chemistry, Laboratory	70.00
5	Analytical Geometry	10.00
6	Calculus	10.00
7	Chemical Physics	20.00
47	Concrete Construction	20.00
30	Direct Currents, Lectures	20.00
31	Direct Currents, Laboratory	30.00
26	Foundations	10.00
2	Geometry	5.00
13	Highway Engineering	10.00
27	Hydraulics	10.00
28	Hydraulic Motors	10.00
34*	Inorganic Chemistry, Lectures	20.00
35*	Inorganic Chemistry, Laboratory	30.00
3	Logarithms and Slide Rule	5.00
23	Machine Drawing	15.00
24	Machine Design	30.00
25	Materials of Construction	10.00
10	Mechanical Drawing	15.00
22	Mechanical Engineering Drawing	15.00
38*	Organic Chemistry, Lectures	20.00
39*	Organic Chemistry, Laboratory	60.00
16	Practical Mechanics	20.00
8	Practical Physics	20.00
9	Practical Physics Problems	10.00
14	Railroad Engineering	20.00
15	Railroad Engineering Drawing	30.00
17	Strength of Materials I	10.00
18	Strength of Materials II	10.00

	Course	*Tuition*
21	Structural Design	$30.00
19	Structural Drawing	30.00
11	Surveying	40.00
20	Theory of Structures	40.00
29	Thermodynamics	20.00
12	Topographical Drawing	20.00
4	Trigonometry	10.00

*A laboratory fee of five dollars per year will be charged to each student taking courses in the chemical laboratories. In addition, a laboratory deposit of five dollars will be required. This deposit is returnable upon payment of all breakage and other charges.

Special Courses

40	Architectural Drawing I	$15.00
41	Architectural Drawing II	15.00
42	Architectural Drawing III	15.00
43	Radio Communication	15.00
44	Radio Code and Practice (Elementary)	20.00
45	Radio Code and Practice (Advanced)	20.00
46	Radio Laboratory	20.00
47	Concrete Construction	20.00

Special Note.—The above rates are in addition to membership ($2). In case more than one subject is taken, a discount of $3 for each additional subject will be made.

assachusetts

NORTHEASTERN COLLEGE

SCHOOL OF LAW

Evening Sessions

Established in 1898; incorporated in 1904. Provides a four-years' course in preparation for the Bar, and grants the Degree of Bachelor of Laws.

SCHOOL OF COMMERCE AND FINANCE

Evening Sessions

Established in 1907; incorporated in 1911. Offers the following three- and four-year courses leading to the degree of B.C.S. (Bachelor of Commercial Science): Business Administration and Professional Accountancy. Any one passing the examination for advanced standing is enabled to complete any one of the regular courses and secure the degree in three years. Special courses in addition to regular courses.

CO-OPERATIVE SCHOOL OF ENGINEERING

Day Sessions

Four-year courses in Civil, Mechanical, Electrical and Chemical Engineering, in coöperation with engineering firms. Students earn while learning. Open to high school graduates.

EVENING SCHOOL OF ENGINEERING

Evening Sessions

A school offering three-year courses in Civil, Mechanical, Electrical, Chemical and Structural Engineering.

SCHOOL OF LIBERAL ARTS

Evening Sessions

Courses of college grade in English Composition, Literature, Ancient and Modern Languages, Mathematics, History, Economics, Government, Psychology, Logic, Philosophy, Education, Public Speaking, Journalism and others. Professors and instructors of New England colleges are engaged for this work. This school enables young men to pursue in the evening courses of instruction of the same high standard as those conducted by the best day colleges.

For further information concerning any of the above schools or departments, address

NORTHEASTERN COLLEGE
316 Huntington Avenue, Boston, Massachusetts

THE EVENING SCHOOL OF ENGINEERING

* * *

FOUNDED FOR THE INSTRUCTION
OF MEN IN THE THEORY AND
PRACTICE OF ENGINEERING

NORTHEASTERN COLLEGE

CATALOGUE

OF THE

School of Liberal Arts

BOSTON, MASSACHUSETTS

FRONT VIEW OF MAIN BUILDING

NORTHEASTERN COLLEGE

CATALOGUE
OF THE
School of Liberal Arts

PUBLISHED BY
NORTHEASTERN COLLEGE
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
316 HUNTINGTON AVENUE, BOSTON, MASS.

Northeastern College

The Trustees

President

ARTHUR STODDARD JOHNSON

First Vice-President

ALBERT HARMON CURTIS

Second Vice-President

SABIN POND SANGER

Third Vice-President

WILMAN EDWARD ADAMS

Secretary

FRANCIS POPE LUCE

Treasurer

LEWIS ABBOTT CROSSETT

William Converse Chick
Russell Sturgis Codman
Henry Bradley Fenno
George Cabot Lee
Henry Gardner Lord
William E. Macurda
Joseph Grafton Minot
Walter Bemis Mossman
Henry Whiting Newhall
Silas Peirce
Charles Worthen Perkins
Arthur Perry, Jr.
Thomas Hasting Russell
Frank Palmer Speare
Stanwood Gray Wellington

Board of Governors

Chairman

ALBERT HARMON CURTIS

William Converse Chick
Henry Whiting Newhall
Stanwood Gray Wellington
Arthur Stoddard Johnson
Frank Palmer Speare
Wilman Edward Adams

Northeastern College

Officers of the College

FRANK PALMER SPEARE, M.H., *President*
GALEN DAVID LIGHT, A.B., *Secretary-Bursar*

The Executive Council

FRANK PALMER SPEARE, M.H.
President of the College

CARL STEPHENS ELL, A.B., M.S.
Dean of the Coöperative School of Engineering and the Evening School of Engineering

DANA SCOTT SYLVESTER, LL.B., B.C.S.
Dean of the School of Commerce and Finance

EVERETT AVERY CHURCHILL, A.B., A.M.
Dean of the School of Law

HOWARD HENRY CHARLES BINGHAM, A.B.
Dean of the School of Liberal Arts

IRA ARTHUR FLINNER, Ph.B., A.M.
Headmaster of the Huntington School

THOMAS WEBB WATKINS, A.B.
Principal of Northeastern Preparatory School

CARL DAVID SMITH, B.H.
Executive Secretary of the Regional Committee

GALEN DAVID LIGHT, A.B.
Secretary

Calendar

1920

September	13–17	Registration
September	20	Opening of First Semester
October	12	Columbus Day
November	25	Thanksgiving Day
December	20–26	Christmas Recess

1921

January	10–14	First Semester Examinations
January	14	Close of First Semester
January	24	Opening of Second Semester
February	22	Washington's Birthday
April	19	Patriots' Day
May	9–13	Final Examinations
May	13	Close of Second Semester

School of Liberal Arts

Officers of Administration

FRANK PALMER SPEARE, M.H., *President*
HOWARD HENRY CHARLES BINGHAM, A.B., *Dean*

Faculty

ARTHUR S. DEWING, Ph.D.
(Harvard University)
Economics

FRANK E. RUPERT, Ph.D.
(Harvard University)
Chemistry

ABRAHAM A. ROBACK, Ph.D.
(Harvard University)
Psychology and English

THAMES R. WILLIAMSON, A.M.
(Harvard University)
Anthropology and Sociology

ALEXANDER BALTZLY, A.M.
(Harvard University)
History

GEORGE B. C. RUGG, A.B.
(Harvard University)
Journalism

THOMAS E. PENARD, S.B.
(Massachusetts Institute of Technology)
Mathematics and Physics

HUGH D. McLELLAN, LL.B.
(Columbia University)
Law

WILLIAM E. DORMAN, LL.B.
(Harvard University)
Law

Student Council

EDWIN S. MacGREGOR, *President*
ELMER F. MITCHELL, *Secretary*
JOHN W. HASTINGS
MARSHALL W. DECKER
PHILLIP M. SMITH

Liberal Arts Club

Officers

President
PHILLIP M. SMITH

First Vice-President
CHARLES M. DAWKINS

Second Vice-President
JOHN W. HASTINGS

Secretary
MARSHALL W. DECKER

Treasurer
GEORGE L. CARPENTER

Purpose of the School of Liberal Arts

Until a few years ago Northeastern College offered only courses of study which were more or less professional and vocational in nature. These courses have met and are meeting the needs of employed men in great numbers. In the last few years, however, there has become increasingly apparent the desire among young men for a liberal education. In order to meet this need the School of Liberal Arts of Northeastern College was opened September, 1916. This school has become one of the regularly organized schools of Northeastern College, and provides for employed men courses of study equivalent in standard to those conducted by our best day colleges and universities.

Equipment

The School of Liberal Arts is housed in the new building of the Boston Young Men's Christian Association, located at 316 Huntington Ave. The class rooms are well lighted and ventilated and exceptionally adapted to evening study. The school is well provided with chemical, physical, psychological, and biological laboratories.

Faculty

The faculty of the School of Liberal Arts is composed of men who are regular members of the teaching staffs of the best day colleges of Greater Boston. In this way there is projected into the evening school the same educational standard and the same academic atmosphere as that obtaining in the day institutions. The instructors who have been selected for this work are men who are authorities in their subjects and who at the same time are sympathetic with the evening student and are acquainted with the problems that he has to face.

Requirements for Admission

Students are admitted to the school both by certificate and by examination. It is expected that entrants shall have successfully completed a four-year preparatory course in an approved high school or similar institution. To be accepted in regular standing, students must have included in their preparatory courses of study the following subjects, amounting to fourteen and one-half units, of which eight units must have been confined to the following group:

(NOTE: Each unit represents a year's study in any subject, in a secondary school, constituting approximately a full year's work).

	Units
English	3
Algebra	1
Foreign Language	2
Plane Geometry	1
Science	1

Students entering the A.B. course must present either three units in Latin or three in Greek.

The remaining six and one-half units may be selected from the following list, and must not include any subject in the above prescribed group:

	Units
Advanced English Composition	1
Latin	1, 2, 3, 4
Greek	1, 2, 3
French	1, 2, 3
German	1, 2, 3
Spanish	1, 2
Algebra	1
Solid Geometry	½
Trigonometry	½
Physics	1
Chemistry	1
Botany	1
Biology	1
Physiology	1
Economics	½, 1
Government	½, 1
Civics	½
Ancient History	1
Medieval and Modern History	1
English History	1
American History	1
Drawing	1

Other subjects of study not listed above, but for which credit is given toward graduation in approved secondary schools, and which are certified to by the principal, may be accepted, to the extent of three units.

Admission to Advanced Standing

Students from other colleges are accepted by the School of Liberal Arts provided they have been honorably dismissed, and present a complete certificate of all work pursued. The standing of such students is determined by the quantity and quality of the work previously done.

Conditions

Students who cannot entirely meet the foregoing requirements, and whose credentials are otherwise good, may be admitted on condition that the deficiency be made up during the first two years of study. This condition, however, must not exceed more than two units. Students accepted on this plan must be passed upon by the Committee on Admission.

Sessions

It is, of course, not possible for the evening student to do the same amount of work in one year as the day student. It is safe to say, however, that a young man who is devoting approximately eight hours a day to work can pursue two or three full courses of study in the evening. Those who are devoting less time to work in the daytime may find it possible to take the full yearly program. The time for the completion of the whole college course, therefore, for most students is lengthened to five years. For those who wish to pursue work in the summertime, courses are offered for which the regular credit may be given.

Courses meet usually three evenings a week. Meetings are one hour in length. The same amount of time is devoted to each full course of study as is required by the day colleges. Most of the courses meet between the hours of six and ten. Courses are opened in the late afternoon when a sufficient number of students apply.

Courses are conducted by means of lectures, quizzes, outside readings, reports, and examinations. Most of the classes are small and students come into close contact with the instructors, who are always ready to give individual attention to those who may desire it.

Requirements for Graduation

The requirements for graduation necessitate the satisfactory completion of one hundred and twenty semester hours of college work, of which at least thirty hours must be completed in this college.

Of this requirement all students must secure credit for the following subjects:

	Semester Hours
English Composition	6
Foreign Language	6
Mathematics	6
Psychology	3

Students who present at least three units of Latin or Greek in meeting the requirements for admission will be excused from further study in these subjects. All students, however, must take at least six hours of a modern language, which must not be a duplication of work done in their preparatory courses.

In order to bring about a correct distribution of the remaining studies, each student must secure credit for at least ten semester hours of work in any four of the following groups, and at least six hours in the remaining group:

GROUP I. — English Language and Composition, Fine Arts
GROUP II. — Ancient and Modern Languages
GROUP III. — Mathematics, Philosophy, Psychology
GROUP IV. — Social and Political Sciences, History, Law
GROUP V. — Mental Sciences

(NOTE: Outlines of the courses included in these groups will be found on the following pages.)

In addition, each student must secure a major credit of at least fifteen hours in one of the recognized subjects of study, as, for instance, English, Economics, History, etc.

(NOTE: The unit by which college work is measured is the "semester hour." The "hour" represents a subject pursued one hour a week for one semester, or one-half year. Thus, a subject which meets three hours a week for one semester represents a credit of three semester hours. If it meets three hours a week throughout the year, or two semesters, it represents a credit of six semester hours.)

Schedule of Courses

A schedule of the courses of studies offered, and the hours at which they come, will be mailed to students upon request.

Outline of Courses of Instruction

English

1ab. English Composition (6)

Instruction in the theory and practice of English Composition by means of lectures, themes, criticisms, and readings. The course covers the essentials of composition from ordinary correspondence to essays. The criticism of students' work in class, by both instructor and students, serves to develop a critical sense in the members of the class, and at the same time enables the writer to look at his workmanship from an objective point of view. Certain masterpieces of literature are discussed, particularly from the point of view of the bearing which each has on the type of composition under consideration.

2a. Public Speaking (3)

Study of the fundamentals of public address. Instruction and practice in the preparation and delivery of formal and informal speeches, the aim being to produce directness, earnestness, and dignity of public address. Some time is also devoted to extemporaneous discourse and debating.

3a. Argumentation (3)

Lectures on the history of argumentation and the principles of debate. Instruction in argument and public presentation. Practice in brief-drawing and the selection and arrangement of material.

4ab. English and American Literature (6)

An outline of the history and development of English and American Literature and the reading of representative masterpieces. The aim of the course is to develop in the student a knowledge and appreciation of good literature as a background for further reading, and also an understanding of its relation to contemporary social and political matters.

5ab.

A study of the principles of journalistic writing, newspaper administration, editing, and reporting. An important feature of the course is the development in the students of the ability to prepare usable articles for newspapers and magazines, involving the study of form and structure of news stories, with emphasis on clearness, force, and interest. A discussion of current news stories in class forms a part of the work.

6a. Advanced News Writing

A course in the writing of big news stories, with considerable attention to methods of covering them. Criticism of leading stories of the day in current papers. Lectures by instructor, expert reporters, and news editors. Students required to cover assignments and write stories out of class. Open to students who have taken Journalism or who show exceptional ability to write.

Designed to prepare students to write the more important news stories of the day. Three hours a week for one term.

7a. Re-writing, Copy Editing, Headline Writing

Principles and practice of re-writing, editing copy and writing of headlines. Preparation of copy for the printer.

Open to students who have taken Journalism 1.

Designed to give students preparation for work on copy desk of a metropolitan daily newspaper. Three hours a week for one term.

8ab. Feature Writing

Principles and practice of newspaper supplement articles on special subjects, personal, narrative, descriptive. Opportunity for work in magazine and short-story writing where special ability is shown.

Course open only to those students who have shown marked aptitude for writing. Three hours a week throughout the year.

Latin

1ab. Livy

Designed to enable the student to acquire facility in reading Latin, and to instruct him in the use of Latin texts as a means of gaining a knowledge of Roman history. A thorough review of Latin grammar.

2ab. Latin Composition

A systematic study of the principles of Latin syntax as well as practice in the writing of Latin.

French

1ab. Elementary French

Grammar, reading, and composition.

2ab. French Composition and Conversation

This course is conducted mainly in French. The work is based upon selected texts, and drill is also given in the writing of French themes and letters.

German

1ab. Elementary German

Grammar, reading, and composition.

2ab. German Composition and Conversation

This course is conducted mainly in German. Work is based upon selected texts, and drill is also given in the writing of German themes and letters.

Spanish

1ab. Elementary Spanish

Grammar, reading, and composition.

2ab. Spanish Composition and Conversation

This course is conducted mainly in Spanish. Work is based upon selected texts, and drill is also given in the writing of Spanish themes and letters.

Mathematics

1ab. Algebra

Permutations and combinations, theory of equations, determinants, partial fractions, logarithms, continued fractions, inequalities, variation, probability.

2ab. Trigonometry

Trigonometric functions, transformations, trigonometric equations, solution of right and oblique triangles, construction of logarithmic and trigonometric tables, etc.

3ab. Surveying

Measuring of heights and distances, chaining, calculations of areas, dividing of land, triangulation, leveling, plotting, topographical drawing, etc.

4ab. Analytic Geometry

The different systems of coördinates with the transformation of equations from one system to the other, the equations of the straight line and conic sections, tangents, normals, and polars to the conic sections, with the commoner properties of the various loci.

5ab. Calculus

Differential calculus-differentiation of algebraic and transcendental functions with applications to finding tangents and normals to curves, indeterminate forms, expansion of functions in series, maxima and minima, singular points, curvature, envelopes, etc.; integral calculus-integration considered as the inverse of differentiation, definite integrals considered as a summation, rectification of curves, areas of plane curves and surfaces of revolution, volumes of solid bodies.

Philosophy

1ab. Introduction to Philosophy

An introduction to the study of Philosophy suitable for students who may wish to pursue more advanced study, and for those who desire a general acquaintance with philosophical ways of thinking. Attention will be paid to the essential relations which philosophical problems and insights bear to the civilizations and social conditions out of which they arise. The relation of philosophy to other typical interests of life, especially those of science, literature, art, history, morality, and religion will be emphasized.

2ab. Logic

A study of the mental processes that constitute good thinking, as attention and interest, observation, reflection, defining, assertion, proof, induction. Considerable time is spent in the critical analysis of arguments, with a view to developing the student's power of detecting fallacies, and to develop consistent reasoning in debate.

3ab. Ethics

This course aims to present the principal theories as to the basis of right and wrong, to discuss practical questions, such as come before men in business and social life, and in citizenship.

Psychology

1ab. Introduction to General Psychology

The course begins with a brief survey of the various branches of Psychology, and follows with a more detailed study of the nervous system and the process and functions of sensation, imagination, association, perception, attention, memory, feeling, and will. Near the end of the course some time is devoted to the study of the application of psychology with reference to the needs of practical life in education, law, medicine, industry, art, and religion. Students in this course enjoy the privileges of the psychological laboratory for the purpose of experimental demonstrations.

2ab. Educational Psychology

A study of the application of psychology to the problems of education. This course aims to correct defective methods in study, and at the same time provides an excellent opportunity for students who may later expect to teach. Special attention is given to such topics as the effects of work, fatigue, individual differences, the psychological features involved in the instruction and study of school subjects. The lectures will be supplemented by class experiments.

3a. Applied Psychology

A practical course which deals with the application of psychology to problems of every-day life and work. This course presupposes a knowledge of General Psychology.

Economics

1ab. Elementary Economics

This course is intended as a survey of the entire economic field. Chief emphasis is laid on the fundamental definitions, laws, and principles. With these laws and principles as a basis, economic problems are discussed. Some of the important topics discussed are value, prices, profits, rent, interest, wages, money, banking, corporations, tariff, railroads, socialism, and taxation. This course is conducted by means of textbooks, informal lectures, and collateral reading.

2a. Economic Problems

Readings, reports, and discussions on selected problems in economics, covering as wide a range of topics as time permits.

3ab. Money and Banking

The course begins with a review of the principles of money and of the functions of a bank, followed by a brief survey of the history and present practice of banking in leading countries, but with extended study of conditions in the United States. Such practical problems as the monetary standard, credit, price movements and their effects on incomes and the cost of living, crises, foreign exchange, and the reforms in our banking system are taken up.

4ab. Corporation Finance

The legal status of the corporation, sources of corporate funds, corporate mortgages, types of corporate bonds, investment of capital funds, creation and use of surplus.

5ab. Accounting

This course is designed to cover the fundamental principles of accounting theory and practice.

6a. Economic History of the United States

The aim of this course is to pursue the economic problems of the United States from the colonial period to the present time. Such topics as the following will receive due amount of discussion: the development of agriculture and manufacturing industries; foreign and domestic commerce; transportation, including canals and railway building, with their subsequent regulation; growth and decline of the merchant marine; banking and currency; the protective tariff, and the movement toward industrial combination.

6b. Economic History of Europe

This course presents the general outline of the economic development of the leading countries of Europe, such as England, France, Germany, and Russia, from the time of the Industrial Revolution. This course serves as a valuable basis upon which to study conditions brought about by the recent war.

7a. Public Finance

A brief survey of the history of public finance taking up such subjects as public expenditures, public revenues other than taxes, public debts, financial administration, and financial legislation. Attention is given to the subject as practiced in various countries.

7b. Taxation

The purpose of this course is to give the students an acquaintance with the principles of taxation and the general problems of taxation in this country. Due consideration is given to the several kinds of taxes, such as land taxes, increment taxes, the single tax, the general property tax, income taxes, war profits, and excess profit taxes. Some attention is given to the tax systems of countries of Europe.

History

1ab. Ancient and Classical History

Review of the ancient peoples and their contribution to general civilization. Study of Hellenic states and culture. The Roman state, its development and transformation. Roman government and law; influence on European history.

2ab. Mediæval History

From the Fall of Rome to the French Revolution. Study of mediæval institutions, migrations, feudalism, Holy Roman Empire, papacy, crusades, towns, rise of European states, Renaissance and Reformation, colonial expansion.

3ab. Modern European History

From the French Revolution to the present. Study of the revolution, its causes and effects. Napoleonic wars, readjustment of Europe, Germany, Russia, industrial revolution, political and social condition of Europe.

4ab. United States History

Colonial period, constitutions and society. Conflict between France and England, Revolution, federal union, constitution, parties, slavery, Civil War, reconstruction, social condition.

5ab. English History

Special reference is given to the parliamentary system of government from Magna Charta to the modern cabinet. Collateral reading, topical investigation, and theses will be required.

Government

1ab.

This course deals with the principles underlying national government, its organizations, powers, and methods. It takes up also state governments, their organization, powers, and methods.

It will deal in outline with constitutional development, the composition and powers of representative bodies, the relations between the executive and legislature, parliamentary procedure, the organization and influence of political parties, and powers of the courts. Some consideration will also be given to municipal governments, their form, work and activities.

2a. Government and Politics of Various States

A study of the political system of the great powers of Europe, including a study of types of colonial administration. The course will take up also the present national and international political situations.

3a. Government and Politics of Latin-American States

A study of political development and conditions in Latin-America, and of Pan-American development.

Law

1ab. Elementary Law

Outlines of Jurisprudence. Intended for students who expect to enter the profession of law, and for those who desire some knowledge of law for practical purposes. The aim of the course is to give a general view of the whole field of law, with an introduction to its terminology and its fundamental ideas.

The following courses in the Law School may be elected by students in the School of Liberal Arts:

2ab. Torts

General principles, assault and battery, false imprisonment, trespass, conversion, slander and libel, enticement and seduction, deceit, slander of title, malicious prosecution, negligence, and incidental points.

3ab. Contracts

Offer and acceptance; consideration; performance of, or promise to perform, non-contract obligation as consideration; moral obligation as consideration; antecedent act or agreement as consideration; parties to a contract, including aliens, executors and administrators, guardians, infants, insane persons, intoxicated persons, and married women; omitting agents, corporations, and partners on account of these subjects being given in other courses; contracts under seal, including the form, requisites thereof, delivery, and the matter of consideration; rights of beneficiaries under a contract; rights of assignees of a contract; conditional and unconditional contracts; rescission of contracts; damages for breach of contract.

4a. Criminal Law

Sources of criminal law; nature of crime; common law and statutory offenses; criminal acts; intent in general, and as affected by circumstances, such as insanity, intoxication, infancy, coercion, ignorance, or mistake; justification; necessity; agency; consent; condonation; contributory acts; domestic relations; parties in crime; jurisdiction.

Crimes against the person; against property; against public policy, health, peace, justice, decency, and morality.

Criminal procedure; arrest, extradition, examination, and bail; indictment and criminal pleading; trial; evidence; proceedings after verdict; error.

5a. Pleading

Common law pleading; common law actions; pleadings, their history, form, and effect; the rules of pleading.

6ab. Corporations

Nature of a corporation; difference between corporation and partnership; distinction between stockholders and corporation; promotion of corporations, formation of corporations, corporations de jure, corporations de facto, dissolution of corporations, interpretation of charters, powers of a corporation; doctrine of ultra vires; liability for torts and crimes; corporation and the State; shares of stock, dividends; rights of stockholders, stockholders' liabilities, voting rights of stockholders, voting trusts; rights and liabilities of directors and officers; rights and remedies of creditors against property of corporations; foreign corporations.

7a. Constitutional Law

Written and unwritten constitutions; history and sources of written constitutions in the United States; state and national; establishing and amending constitutions; distribution of powers among the three departments; theory and consequences of this distribution; the judicial department; nature of judicial power; jurisdiction of the federal government, criminal and civil; express, implied, and resulting powers; citizenship; civil and political rights; the police power; the right of eminent domain; taxation, impairment of contracts, ex post facto and retrospective legislation generally; regulation of commerce.

Mental Sciences

1. Logic

A study of the mental processes that constitute good thinking, as attention and interest, observation, reflection, defining, assertion, proof, induction. Considerable time is spent in the critical analysis of arguments, with a view to developing the student's power of detecting fallacies and of consistent reasoning in debate.

2. Ethics

This course aims to present the principal theories as to the basis of right and wrong, to discuss practical questions, such as come before men in business and social life, and in citizenship.

Transfers to Other Colleges

Students have the privilege of transferring to day colleges at the end of two or three years of study in the School of Liberal Arts. A recommendation is issued to all students who wish to transfer to other colleges, providing the quality of work that they have done has been high.

Dormitories

Students from out of town will find it possible to secure dormitories in the building, provided application is made a sufficient time in advance. The services of the Department of Council and Placement will be available to young men who are desirous of obtaining work in Boston in order that they may take up their studies with the school.

Tuition

Tuition rates for courses in the School of Liberal Arts are as follows:

* One-hour course	$10.00
Two-hour course	15.00
Three-hour course	20.00
Four-hour course	25.00
Six-hour course	30.00

* The "hour" represents a subject pursued one hour a week for one semester, or one-half year. Thus a subject which meets two hours a week for one semester is equivalent to a two-hour course; one which meets two hours a week for two semesters is equivalent to a four-hour course, etc.

One third of the tuition is due at the time of enrolment. The balance is due in equal instalments on December first and February first.

For students who take Chemistry, two fees will be charged: $5.00 breakage fee, and $5.00 laboratory fee. The former fee is returned to the student if at the end of his period of instruction there has been no breakage of materials; the latter fee is not returnable.

Social Life

There are many activities within the school and in other departments of the Young Men's Christian Association by means of which students of the school may find opportunity for social activity.

The Liberal Arts Club is an organization of the students of the school for the promotion of social life. Its functions are many and admission to membership is on a democratic basis.

Every year the students join in an annual banquet. This affair is one of the most enjoyable of the year and is participated in by the majority of the students.

Students are allowed the use of the gymnasium upon the payment of a small additional fee. In this building there are also hand ball and squash courts, six bowling alleys, shower baths, lockers, rooms for special exercising, and running track.

The swimming pool is 75 by 25 feet and is under a glass roof. The pool is supplied with filtered salt water and is heated to the proper temperature.

Athletics are encouraged on the part of evening students as far as possible. On account of the limited time which they have for such activities it happens that most athletics are confined to indoor games.

Students are entitled to all of the privileges which regular members of the Association enjoy.

NORTHEASTERN COLLEGE

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

SCHOOL OF LAW

Evening Sessions

Established in 1898; incorporated in 1904. Provides a four-years' course in preparation for the Bar, and grants the degree of Bachelor of Laws.

SCHOOL OF COMMERCE AND FINANCE

Evening Sessions

Complete preparation for state examination for Certified Public Accountants.

Four-year courses, including Accounting, Auditing and Business Administration, leading to degrees of Bachelor Commercial Service and Master Commercial Service.

CO-OPERATIVE SCHOOL OF ENGINEERING

Day Sessions

Four-year courses in Civil, Mechanical, Electrical and Chemical Engineering, leading to the degrees of Bachelor of Civil Engineering, Bachelor of Mechanical Engineering, Bachelor of Electrical Engineering, and Bachelor of Chemical Engineering. The school operates in coöperation with engineering firms. Students earn while learning. Open to high-school graduates.

EVENING SCHOOL OF ENGINEERING

Evening Sessions

A school offering three-year courses in Civil, Mechanical, Electrical, Chemical, and Structural Engineering. Trains men for positions of trust and responsibility.

SCHOOL OF LIBERAL ARTS

Evening Sessions

Courses of college grade in English Composition, Literature, Ancient and Modern Languages, Mathematics, History, Economics, Government, Psychology, Logic, Philosophy, Education, Public Speaking, Journalism, and others. Professors and instructors of New England colleges are engaged for this work. This school enables young men to pursue in the evening courses of instruction of the same high standard as those conducted by the best day colleges.

For catalogues and complete information address the Secretary, 316 Huntington Avenue, Boston, Massachusetts.

FRANK PALMER SPEARE, M.H., *President.*

The Fort Hill Press
SAMUEL USHER
BOSTON, MASSACHUSETTS

NORTHEASTERN UNIVERSITY LIBRARIES DUPL
3 9358 01114026 3

NORTHEASTERN UNIVERSITY LIBRARIES
3 9358 01114026 3